

Iron + St - Gen

THE RESURRECTION

— OF THE —

Oldest Type of Building Construction

THE ARCH

— BY —

THE ARCH CONSTRUCTION CO., INC.

NEW ORLEANS, LA.

(SEE ADDRESSES AND TELEPHONE NUMBERS ON REAR COVER)

“BUILDING BETTER BUILDINGS”

PATENTS PENDING

OUR ARCH CONSTRUCTION

IS SUPERIOR TO ANY OTHER TYPE OF CONSTRUCTION ON THE FOLLOWING KINDS OF BUILDINGS

AUDITORIUMS

GYMNASIUMS

CHURCHES

DANCE PAVILLIONS

THEATRES

MOVING PICTURE HOUSES

COLISEUMS

ROOF GARDENS

CONVENTION HALLS

RAILROAD STATIONS

DOCK SHEDS

WAREHOUSES

GARAGES

HANGARS { AEROPLANE and
DIRIGIBLES

INDUSTRIAL PLANTS

MACHINE SHOPS

PACKING HOUSES

MANUFACTURING PLANTS

COTTON SHEDS

SUGAR HOUSES

ANY ONE STORY STRUCTURE WHERE A CLEAR SPAN IS DESIRED.

THE TOP FLOOR OF ANY BUILDING WHERE A CLEAR SPAN IS DESIRED.

Architects--Engineers and Other Builders

WISHING TO USE OUR CONSTRUCTION NEED MERELY SHOW ON THEIR GENERAL DRAWINGS AN ELLIPTICAL CROSS-SECTION OF THE BUILDING, AS ILLUSTRATED ON PAGE No. 7, AND INSERT THE FOLLOWING CLAUSE INTO THEIR SPECIFICATIONS:

The attention of all Bidders and others concerned is called to the fact that the Electrically Welded Steel ARCH CONSTRUCTION shown on the General Drawings is a Patent Proposition and must be erected by the ARCH CONSTRUCTION CO., Inc., of New Orleans, La., or their duly Authorized Agents, using their trained and experienced workmen, all to be erected strictly in accordance with detailed Working Drawings to be furnished by the ARCH ENGINEERING CO., of New Orleans, La. Also all Royalties, Etc., must be paid by the General Contractor and the Owner protected and held harmless against such Liabilities."

(Above similar to that used by the City of New Orleans on a recent Municipal Building.)

History of Arch Roof Construction

THE First Bungalow of Mr. Stone Hatchet, consisted of a Cave which had an Arched Roof—this being Natures own way of Spanning Space.

The Romans used practically nothing but the Barrel Arch Roof in their Churches, which are still withstanding the Test of Time, whereas frailer constructions used elsewhere have passed from sight. The Goths and Tudors also were well versed in ARCH ROOF CONSTRUCTION and used it Exclusively.

The early Churches built with ARCH ROOFS by the Spaniards in Guatemala and other parts of Central America have withstood the Shocks of Earthquakes for several centuries despite the fact that Steel Construction was unknown in those days.

Recently riveted Steel Trusses due to the ability of steel to carry Tension, which the Masonry could not carry—due to the light dead load—and due to the simplicity of figuring the stresses, seemed to have relegated the Arch Roof to the Lost Art Department.

Today the Stable Arc Electric Welding Machine, combined with Structural Steel Shapes, modern enlightenment along Educational Lines, the Advantages of Travel, and American Inventive Ability, have produced Our ARCH CONSTRUCTION, which gives to the Architect; a flexibility of Design, heretofore unconceived of,

to the Engineer; the only type of Construction which has withstood the Florida Hurricanes 100% Unhurt,

to the Contractor; an increased speed of erection, due to the elimination of all shop-work,

to the Owner a Better and more Economical Building,

and to the Public at large a more pleasing appearance to the Buildings.

Welded Steel Arch Construction

HAS been used during the past three years on:—The Largest Municipal Airport in Texas—The Largest Fruit Packing House in the World (in Florida),—The Largest Auditorium in Louisiana—and the largest Packing House in Alabama—as well as Gymnasiums, Garages, Warehouses, Municipal Stables at New Orleans, School Auditoriums, Etc.

Advantages

1. SERVICEABILITY—The Clear Span Construction—unobstructed by any diagonal truss members such as usually clutter up the interior under the ceiling, affords Better Light as well as Better Appearance, and gives an Architectural Flexibility heretofore not possible, the Height and Curved Shape making it specially desirable where head room is of value, as in Gymnasiums—Auditoriums—Storage Sheds, Etc.

2. STRENGTH—This is the only type of Construction which has withstood the TROPICAL HURRICANES 100% unhurt despite the centers of two in one month (including the most destructive one on record) passing through a nest of our Buildings. The BULBED ANCHOR PILES combined with the curved shape and fact that the structural steel is solidly welded to the foundation makes it practically STORM PROOF—as the Wind generally picks Roofs up and carries them away—it seldom “Blows the Roof Down”.

3. FIRE PROTECTION—Fire-Chief Evans of New Orleans, (Past President of the International Fire Chiefs of the World), states that this type of construction is especially valuable in fighting fires as the usual truss members interfere with his “fire-streams” and prevent getting the water back to the proper point.

Also whereas the usual steel beams expand in length during a fire due to the change in temperature—pushing over the side walls, which frequently kills a fireman or two—and the trusses weaken and collapse at 750°,—the steel ARCH (due to its shape) will sustain the dead load at a red heat, confining the flames so that they cannot spread to Adjoining Buildings. Practically all expansion is UPWARD.

4. APPEARANCE—The Arch has since the Beginning of Time been considered as one of the most Beautiful Architectural Features obtainable, especially in Roof Design—Note: L'Opera at Paris—Versailles (Where the Peace Treaty was signed) —Taj Mahal in India (Frequently considered to be the most Sublimely Beautiful Building ever erected) or most any large Building of note.

5. ECONOMY—Our Arch Construction not only saves considerable Steel, but affects a saving in Masonry Walls on the sides that frequently exceeds \$5,000.00 for a building 100 ft. long.

6. UTILITY—Due to the greater strength—Shafting for machinery may generally be suspended from the steel ribs without Special Reinforcing.

7. SPEED OF ERECTION—As all shop fabrication is eliminated, no delay is encountered while waiting on Shop-Work.

Estimating

Architects, Engineers and others, may generally estimate our Steel Work at about the same as structural Steel Trusses plus half the saving in Masonry Walls. This generally works out about 30 cents per square foot of roof surface for the structural steel, plus side and end wall structural work, which cost about the same per sq. ft. of surface. When we effect a saving in side Masonry walls add about \$15.00 per foot of length of Building.



\$225,000.00 FRUIT PACKING HOUSE OF DR. P. PHILIPS

Conceded to be THE LARGEST AND FINEST FRUIT PACKING HOUSE IN THE WORLD. The Centers of two Hurricanes failed to hurt our Arch Construction.
"QUANTITY OF QUALITY"

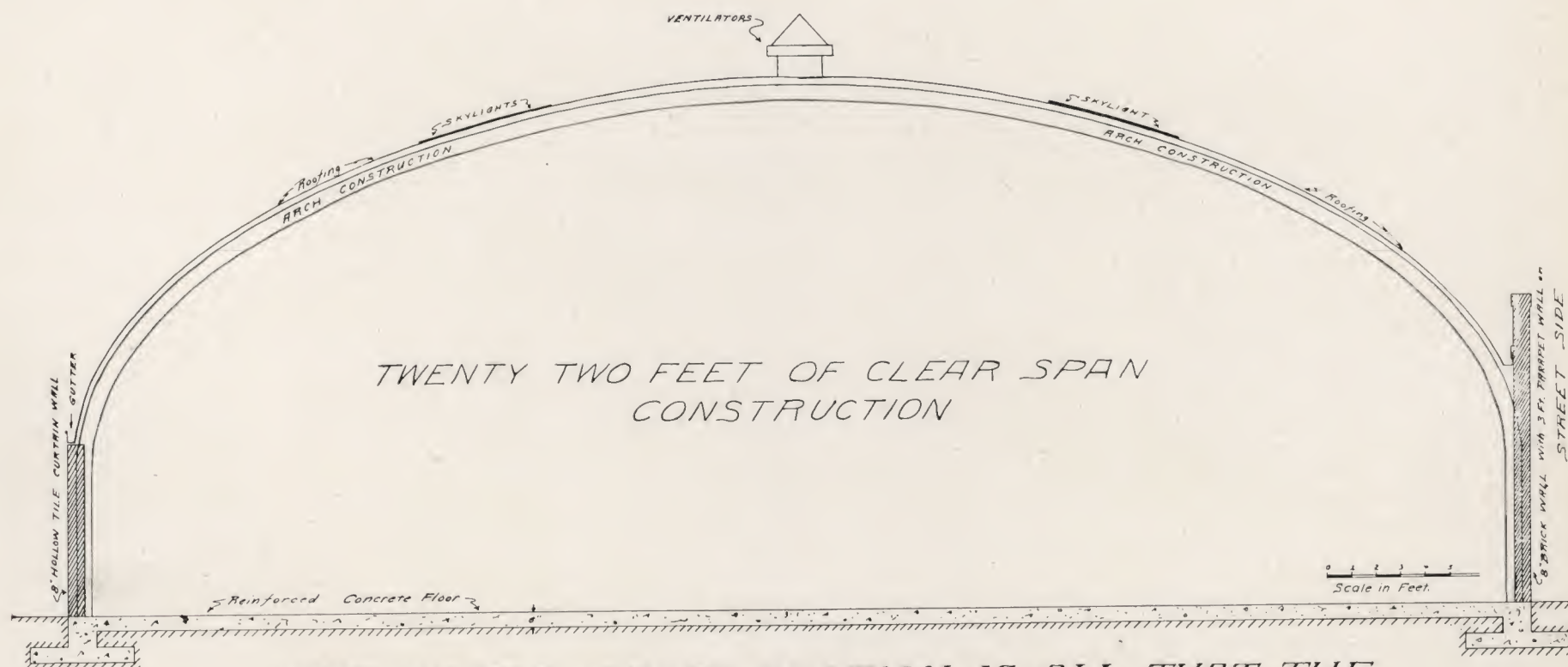


SECOND FLOOR INTERIOR OF THE PHILIPS PACKING HOUSE.

As a cool interior was mandatory to prevent undue ripening of the Fruit—the High Arched roof lined with Celotex was selected by the Architect, Mr. David B. Hyer of Orlando, Fla., as the best type of Construction that money could buy.

Celotex was applied on top of "Hollow-Rib" Steel plates and covered with Built-up Roofing.

60 FOOT SPAN.

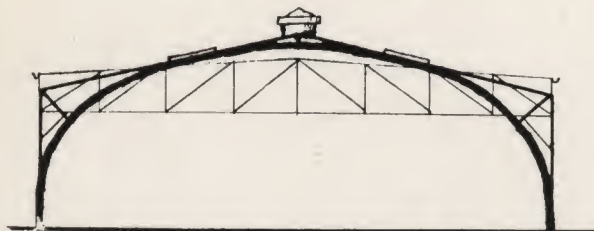


THE ABOVE CROSS SECTION IS ALL THAT THE ARCHITECT NEED SHOW ON HIS GENERAL DRAWING IN ORDER TO INCORPORATE THIS DESIGN INTO HIS PLANS.

NOTE THE SAVING OF MASONRY IN THE SIDE WALLS.

(The above is approximately an ellipse with the ends slightly flattened to provide the desired head room.)

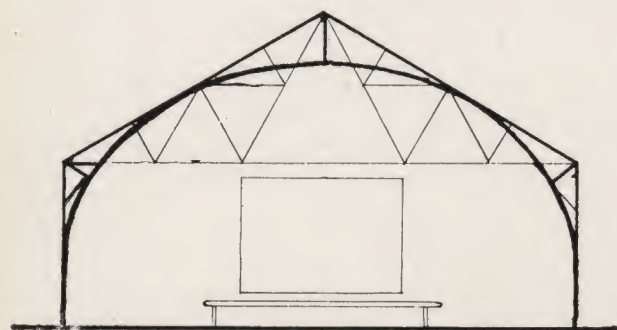
TYPICAL SHAPES - TO SCALE.



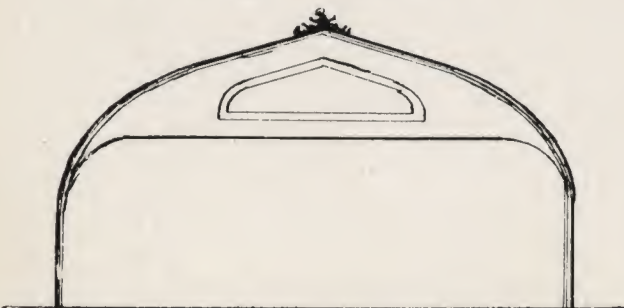
#1 - Dock Sheds - Warehouses - Etc. -
Using a Barrett Specification
Roofing.



#4 - Industrial Plants - Etc. using:-
Corrugated Asbestos (John-Manville, Dorn,
Ambler) - Robertson's Protected Metal ("R.R.M.") -
or Corrugated Galvanized Iron Roofing.



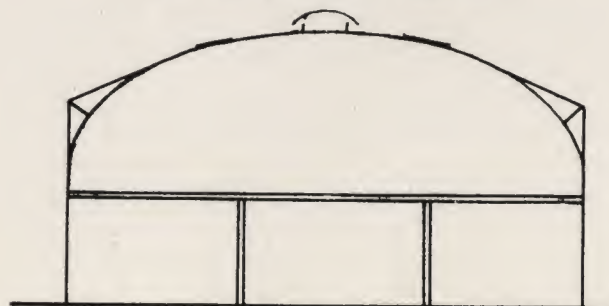
#2 - Moving-Picture Houses - Lodge
Room, Etc. - Also where slate or
Tile Roofing is Desired.



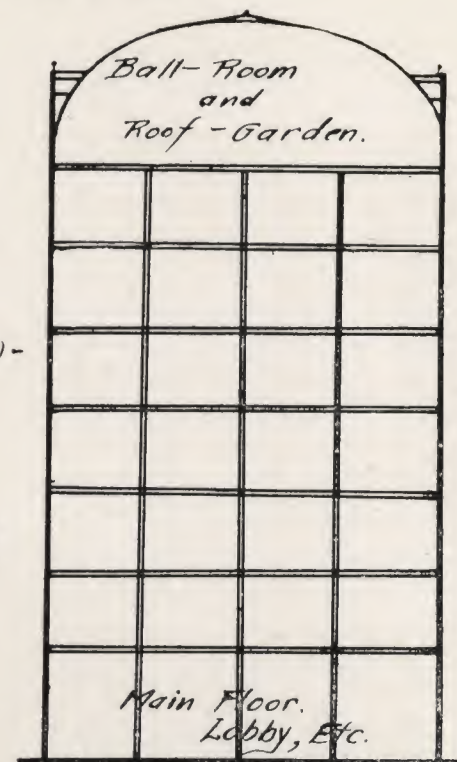
#3 - Airplane Hangars - churches, Etc.
Using Tudor Gothic Arch.



#5 Garages - Stores - Packing Houses -
Etc. - in Fire Districts.
- Using 8" Hollow Tile Curtain Walls.
Steel Ribs Run to Ground Through Walls
on 10' to 12.5' centers.



#6 - Two Story Construction - Floor
System acts as tie. -

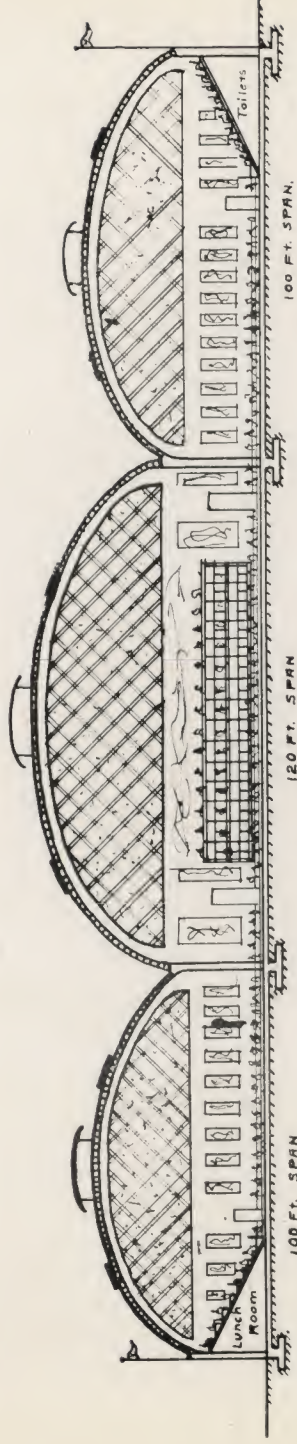


#7 - Top Floor of Hotels, Etc.
(For Exterior Rendering, See
New Willard Hotel -
Washington, D.C.)

60 Foot
Spans.

NOTE THAT THE USE OF OUR ARCH NEED NOT CHANGE THE SHAPE OF EITHER THE ROOF OR THE CEILING FROM THAT WHICH IS CUSTOMARY.
(Note flat ceiling on page No. 19—Top—and front of same building on Page No. 18.)

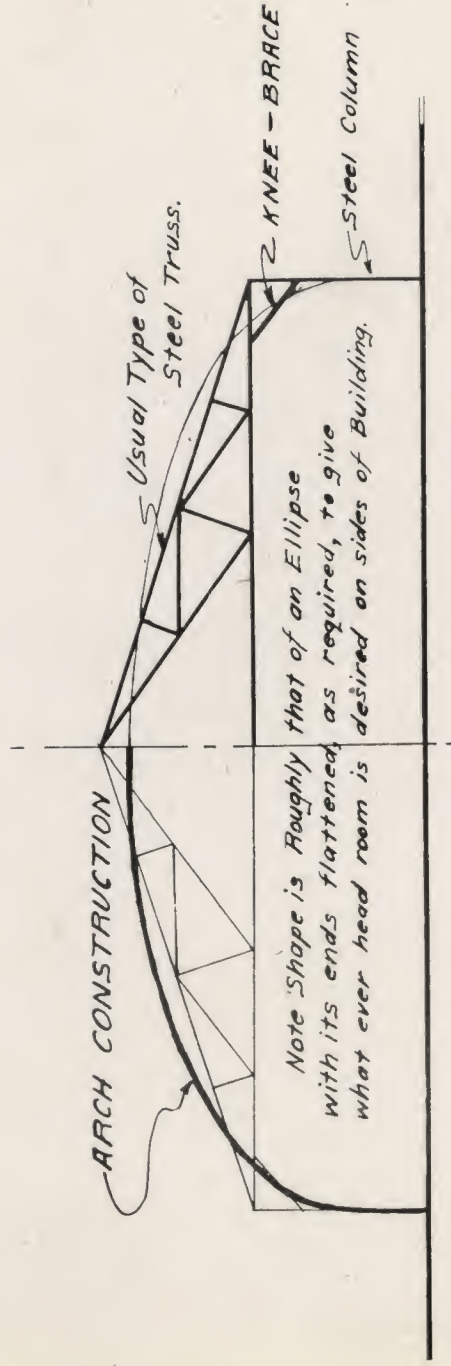
Auditorium 325' Long- Seating Capacity,
30,000.



OUR DESIGN FOR THE 1928 NATIONAL DEMOCRATIC CONVENTION HALL AT
HOUSTON, TEXAS.

Kenneth Franzheim, Architect - N.Y.City.

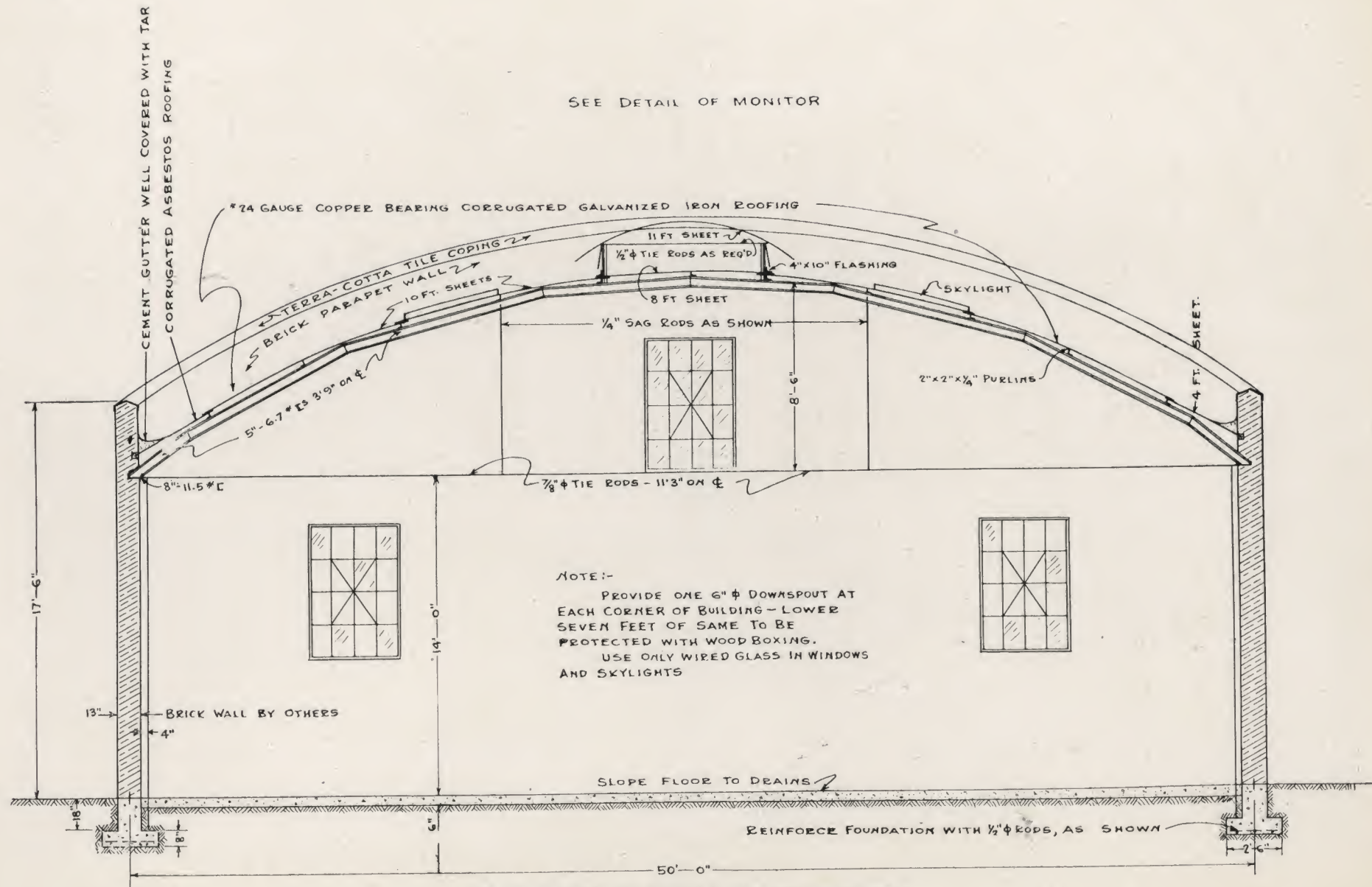
60 FT. SPAN.



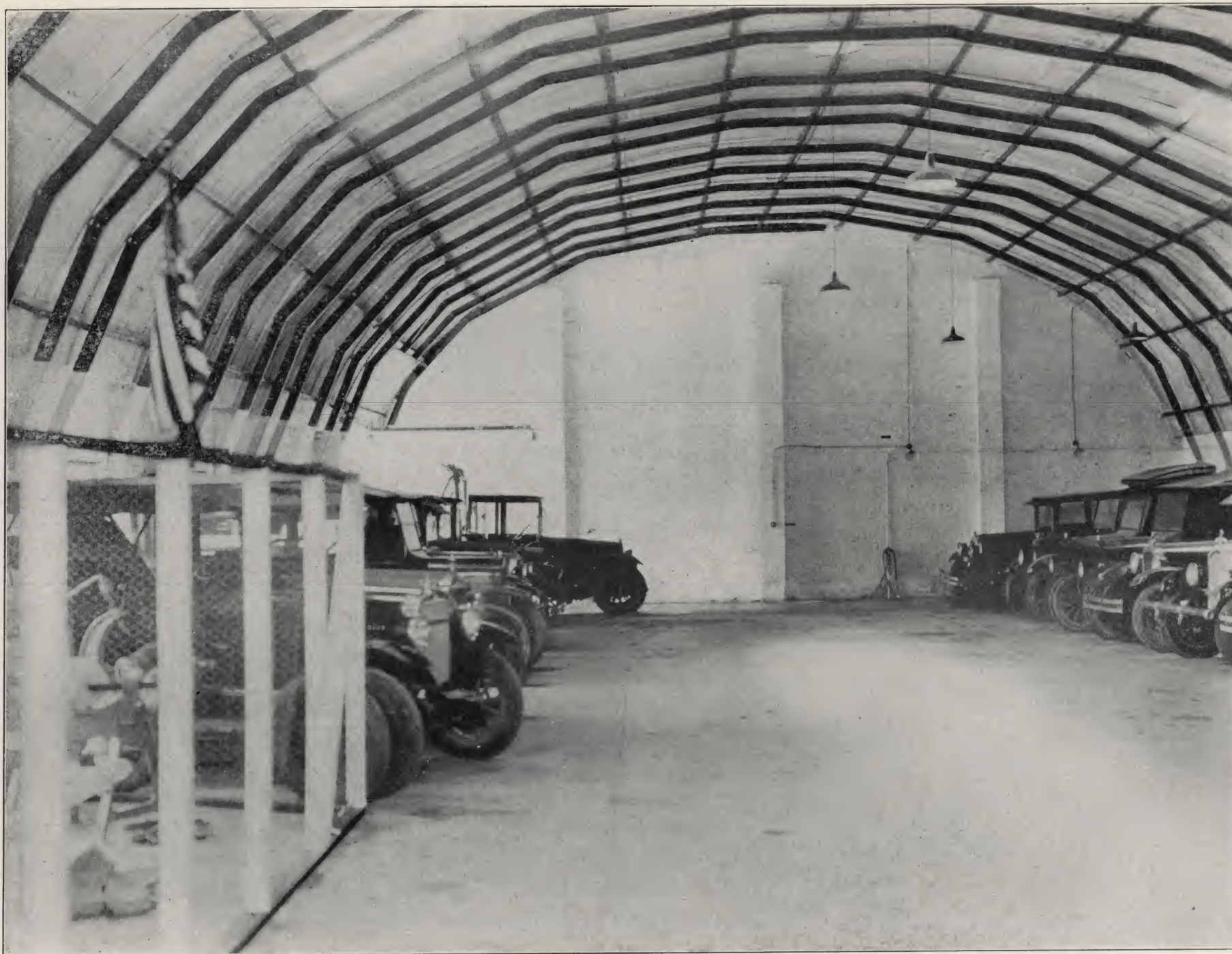
ABOVE SKETCH SHOWS HOW OUR ARCH RIBS DO NOT CUT DOWN ON THE HEAD ROOM AT THE SIDES OF THE BUILDING; BUT MERELY CUT THROUGH THE KNEE-BRACE WHICH IS INDISPENSIBLE ON ANY PROPERLY DESIGNED STEEL TRUSS STRUCTURE WHICH IS CAPABLE OF RESISTING WINDS OF HURRICANE FORCE. A FLAT PLASTERED CEILING IS EASILY SUSPENDED FROM OR ARCHES IF DESIRED.



INTERIOR OF OUR FIRST JOB—SHOWING A 50 FT. SPAN—USING TIE RODS.
THE FIRST ELECTRICALLY WELDED ARCH ROOF EVER CONSTRUCTED.



CROSS-SECTION OF RHODES GARAGE ON PAGE 10.
(Taken from Working Drawings)



INTERIOR OF BALTZELL'S GARAGE AT HAMMOND, LA.
Showing Marvelous Lighting—Void of all Shadows.



EXTERIOR OF OUR FIRST ELLIPTICAL DESIGN
Baltzell's Garage—Using 50 Ft. Span.

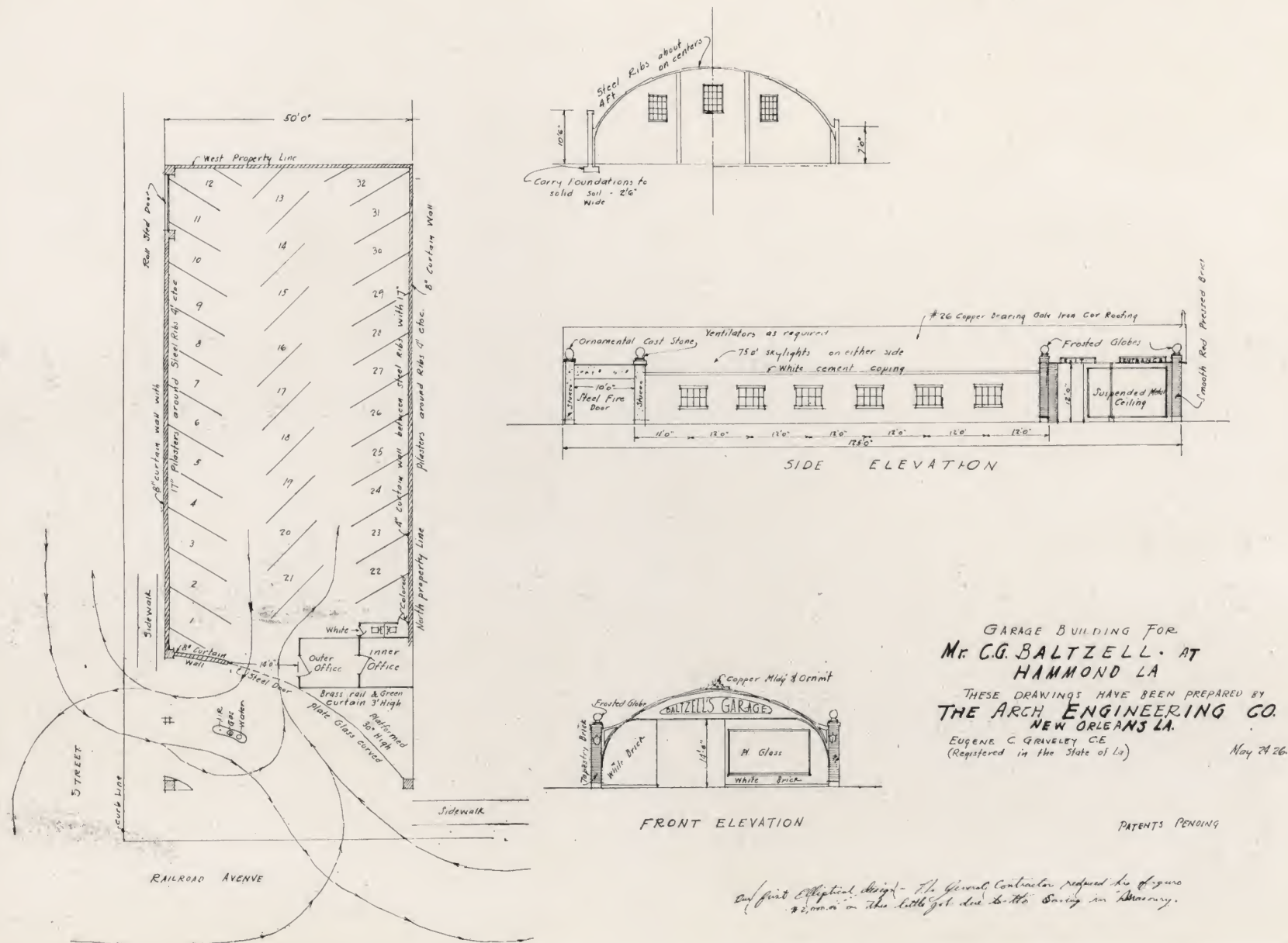


NOTE REDUCTION OBTAINED IN SIDE WALLS.

(General Contractor gave Owner Reduction of \$2,000.00 for use of our Design on this Building.)



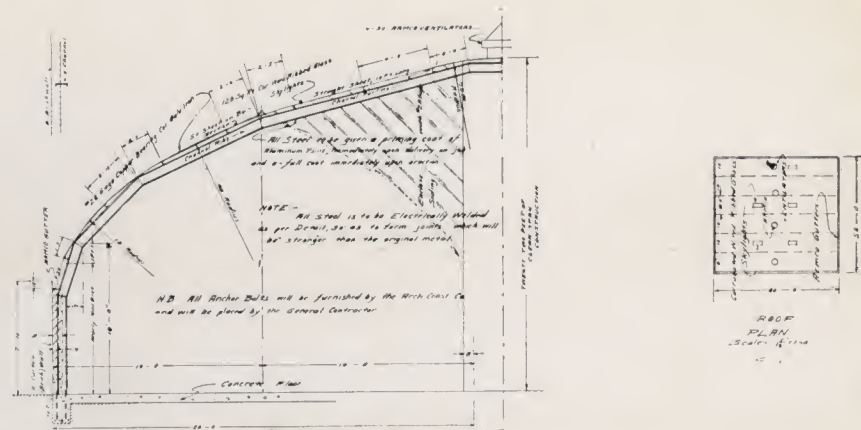
FRAME-WORK OF BALTZELL'S GARAGE
Note absence of all truss-work or Tie Rods.



SHOWING ARCHITECTS GENERAL DRAWING OF BALTZELL'S GARAGE.



EXTERIOR FELIX GARAGE
2536 Canal Street, New Orleans, La.



HALF SECTION
Scale 1/4" = 1'-0"
WORKING DRAWING OF FELIX GARAGE



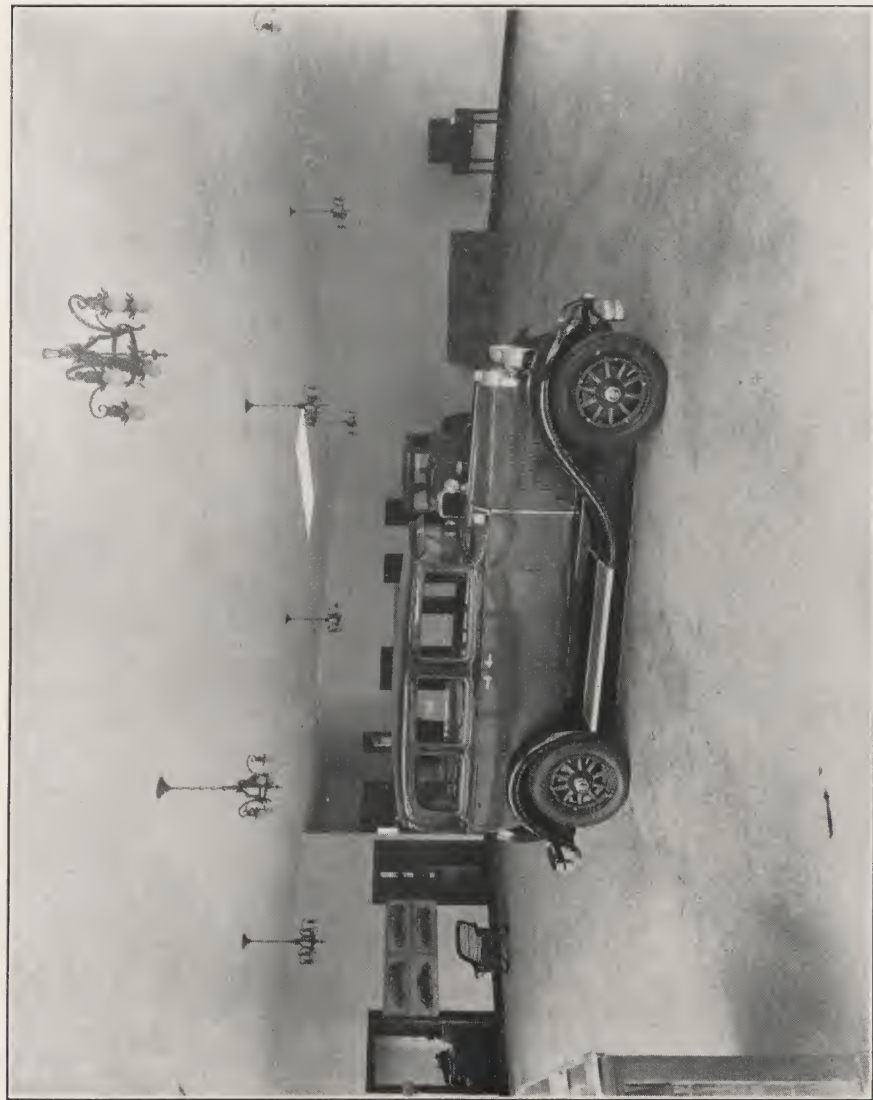
INTERIOR FELIX SERVICE STATION
(Note 8" Hollow Tile Curtain Walls on sides)
Owner found \$2,000.00 Saving due to change in Masonry Wall.



ARMSTRONG GARAGE—CARROLLTON AVE. AND EDINBURGH ST.
(Note faced tile front)



NASH SALES AND SERVICE BUILDING AT ORLANDO, FLA.
GEROW & CONKLIN, ARCHITECTS
Toledo, Ohio.



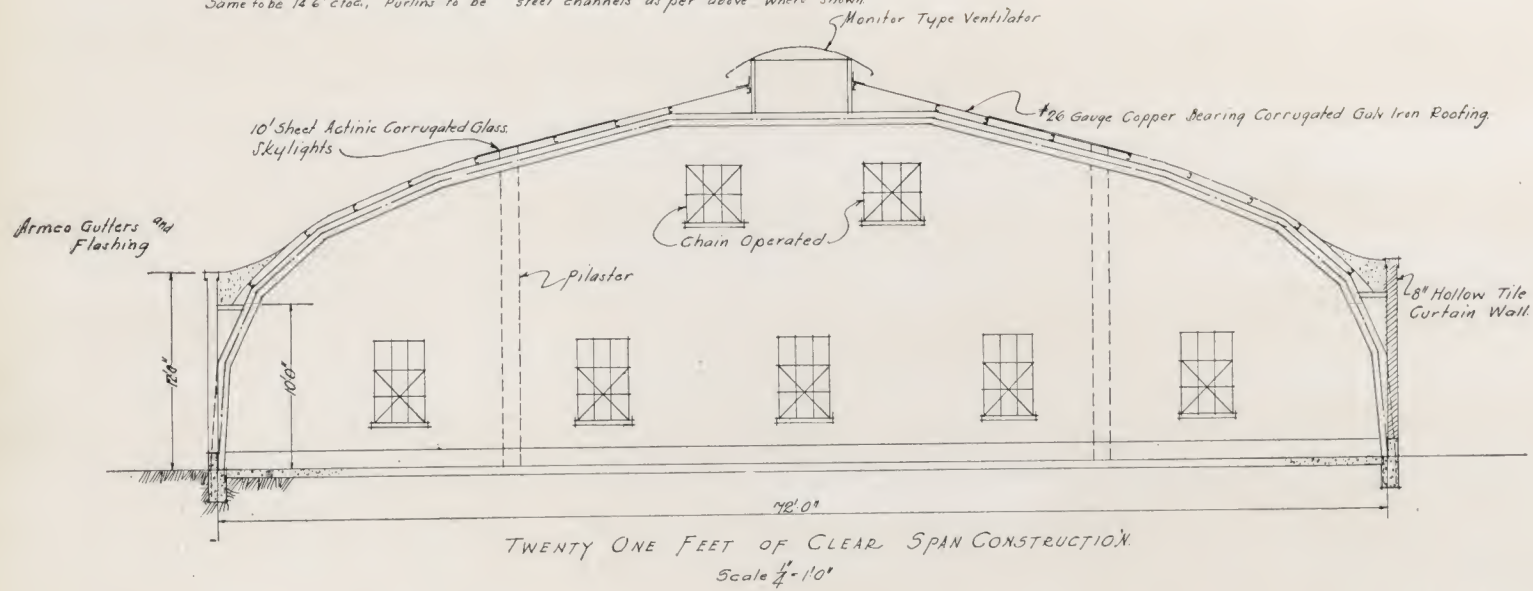
SALES ROOM OF WARD-LEONARD BLDG.
Orlando, Fla.
ARCH CONSTRUCTION WITH SUSPENDED PLASTER CEILING.



SERVICE SHOP OF WARD-LEONARD GARAGE—ORLANDO, FLA.
(Note Exterior on Opposite Page.)

NOTE:-

Steel Ribs to be Steel Channels
to be Electrically Welded & erected by the ARCH-CONST-CO.
Same to be 14'6" c/c, Purlins to be steel channels as per above where shown

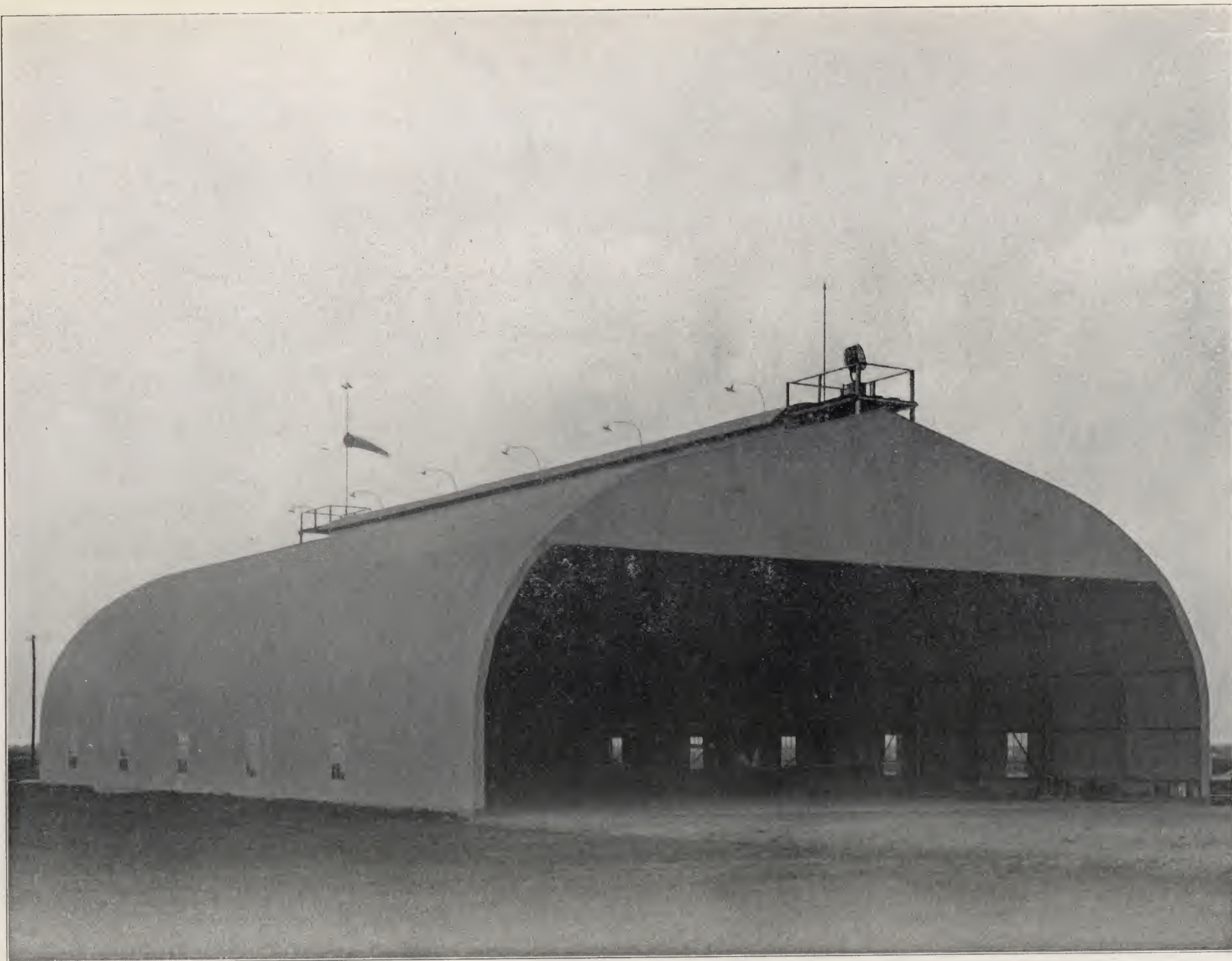


SALES ROOM & STORAGE GARAGE
FOR
THE NASH AUTOMOBILE AGENT
ORLANDO FLORIDA

GEROW & CONKLIN - ARCHITECTS. TOLEDO OHIO.
EUGENE C. GRAVELEY, STRUCTURAL ENGR. NEW ORLEANS LA.
Sept 1st 1928 Sheet No 1 of 2 Sheets

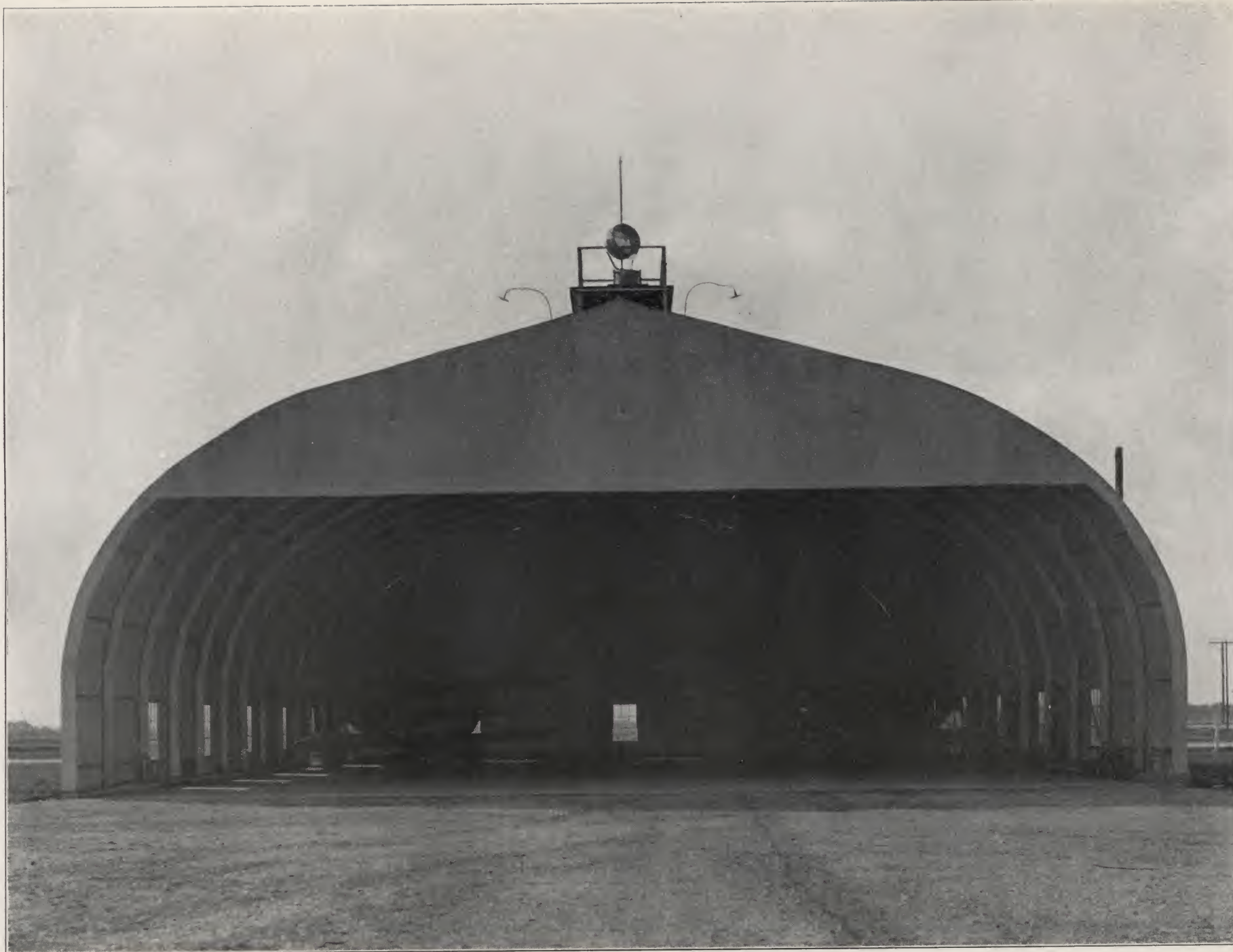
PATENT PENDING

CROSS-SECTIONAL DRAWING OF NASH GARAGE—ORLANDO, FLA.
Gerow & Conklin—Architects, Toledo, Ohio.



“THE PRIDE OF THE HOUSTON AIRPORT”

75' x 120' All Metal Hangar.



NOTHING TO COLLAPSE IN CASE OF FIRE
Will retain its shape and carry its dead load at red heat.
SHOWING HURRICANE-PROOF CONSTRUCTION.



INTERIOR OF 60 FT. HANGAR—HOUSTON, TEXAS.
Note absence of all truss work—Hog-Chains, Head-Room, Etc.

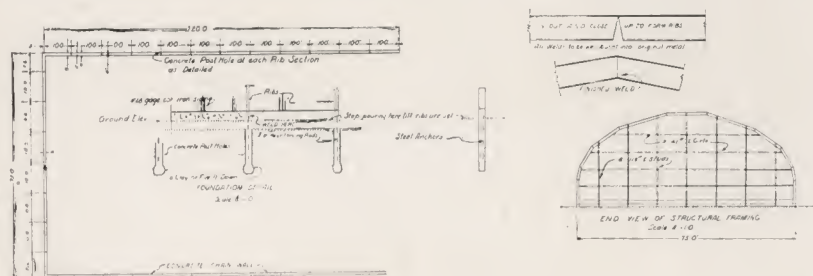


SHOWING STRUCTURAL PART OF 75 FT. HANGAR.

All Arches are electrically welded to Bulbed reinforced Concrete Anchor Piles that prevent lifting during High Winds.



APPROVED BY ALL WHO HAVE SEEN IT.



HANGAR FOR HOUSTON AIRPORT

Designed By

FRANK C. GARDNER, C.E.
ARCHITECTURAL ENGINEER, HOUSTON
August 17, 1927

Details to be furnished by

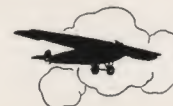
THE ARDEN ENGINEERING CO. HOUSTON

PROJECT NO. 100-100

NOTE BULBED CONCRETE ANCHOR PILES USED IN FOUNDATION.

USE THE AIR MAIL

MAIL ADDRESS:
UPTOWN OFFICE—1201 CAPITOL AVE.
AIRPORT—R. F. D. ROUTE NO. 7; Box 450



TELEPHONE:
PARK PLACE 60

HOUSTON AIRPORT CORPORATION
TELEPHONE ROAD

HOUSTON, TEXAS, January 28, 1929

Mr. Eugene C. Graveley,
740 Poydras Street,
New Orleans, La.

Dear Mr. Graveley:-

I am in receipt of your letter of January 25th.
with letter enclosed, which I am returning.

I am sending you a letter of introduction to Mr. F. Trubee Davison, Assistant Secretary of War, and also a personal friend of mine on the General Staff, who you might see before Mr. Davison, as he may be able to arrange an appointment with Mr. Davison for you sooner than otherwise.

In conversation the other day with Major Reid who is Commanding Officer of the National Guard Unit stationed at the Houston Airport, and who occupy two of the hangars you built, he mentioned that the Chief Inspector of all National Guard Units who has headquarters in Washington, had seen our hangars, and left here with the intention of making a strong recommendation for this type.

It may interest you to know that the U. S. Army Air Corps will soon start construction to the amount of several million dollars on a new field at Shreveport for the permanent location of the Third Attack Group.

Yours very truly,

Hayward K. Lewis

ROBERT J. CUMMINS
CONSULTING ENGINEER
HOUSTON, TEXAS

BANKERS MORTGAGE BUILDING

January 18, 1929.

Mr. Eugene C. Graveley,
740 Poydras Street,
New Orleans, La.

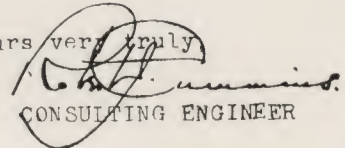
Dear Sir:

Replying to your recent letter asking us for an expression of opinion regarding the three steel hangars designed and erected by you for the Houston Airport Corporation, Houston, Texas, the largest of these units being 75 ft. span and 120 feet in length, we would state that these buildings have been in use for over one year and have given every satisfaction.

They have been subjected to some quite high winds and the only damage they ever experienced was the ripping off of three small sections of the corrugated iron roof which was quickly and easily replaced at a very nominal expense.

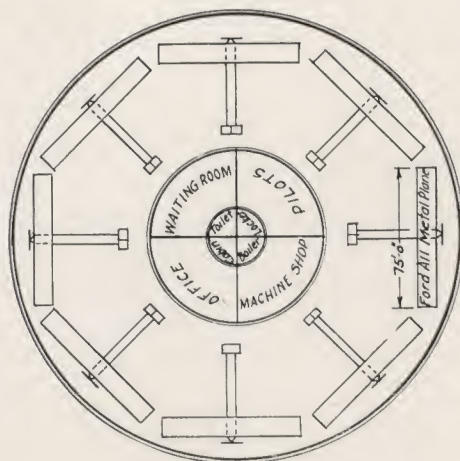
Should the owners of this airport, which is used extensively in connection with the arrival and departure of the airmail, decide to erect additional facilities we believe they will give every consideration to the use of your type of arch rib construction.

Yours very truly


CONSULTING ENGINEER

RJC:AB

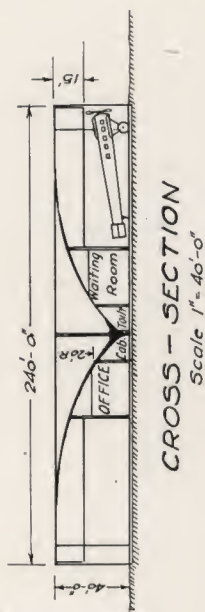
Note -
Using Electrically Welded Steel Arch
Construction.



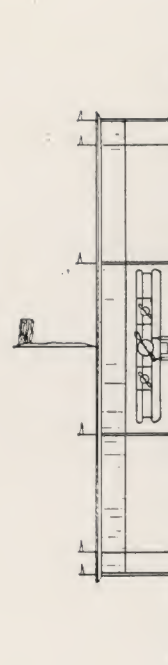
PLAN VIEW
Scale - 1" = 40'-0"

ROUND-HOUSE
TYPE OF
HANGAR

Designed by
The ARCH ENGINEERING CO.
740 Poydras St. NO. La.



CROSS - SECTION
Scale 1" = 40'-0"



FRONT-ELEVATION
Scale 1" = 40'-0"

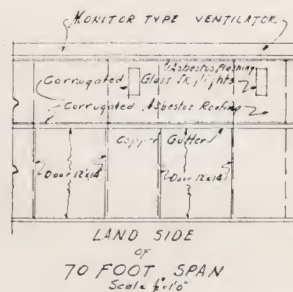
PATENTS PENDING

5-9-28

PORT SIDE
0 Foot ^{of} Span
Scale 4" = 1'0"

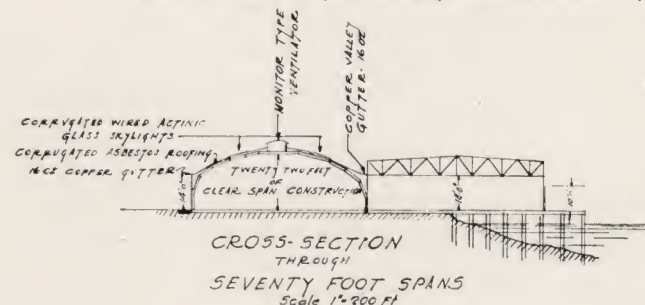


LAND SIDE
of
140 FOOT SPAN
Scale 4" = 10'

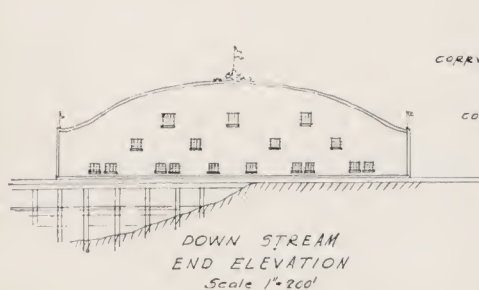


LAND SIDE
OF
70 FOOT SPAN
Scale 1/2" = 1'-0"

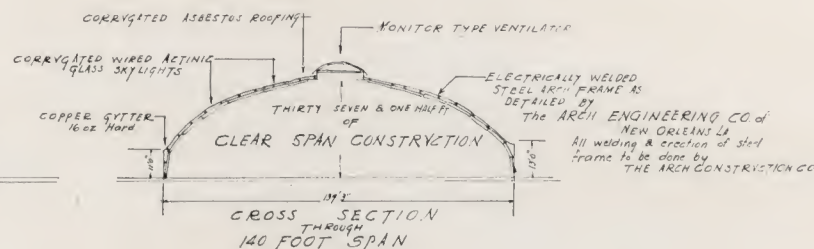
All doors and siding to be as called for in Specifications except
End 140' span to be corrugated asbestos
Doors in end of 70' spans to be of Roll Type
Doors on side of 70' span to slide up - others to move sideways



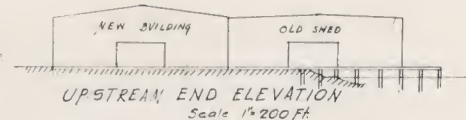
CROSS-SECTION
THROUGH
SEVENTY FOOT SPANS
Scale 1"=200 FT



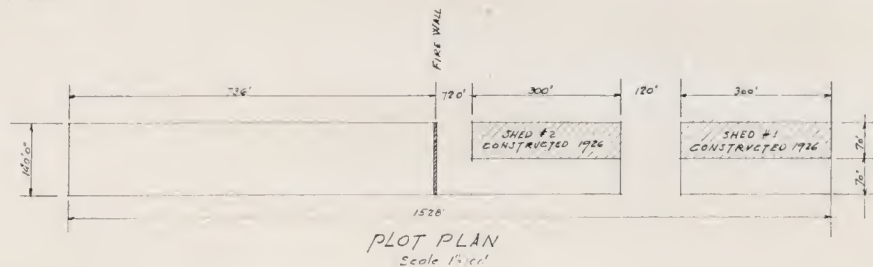
DOWN STREAM
END ELEVATION
Scale 1"=200'



CROSS SECTION
THROUGH
140 FOOT SPAN



UPSTREAM END ELEVATION
Scale 1" = 200 Ft.

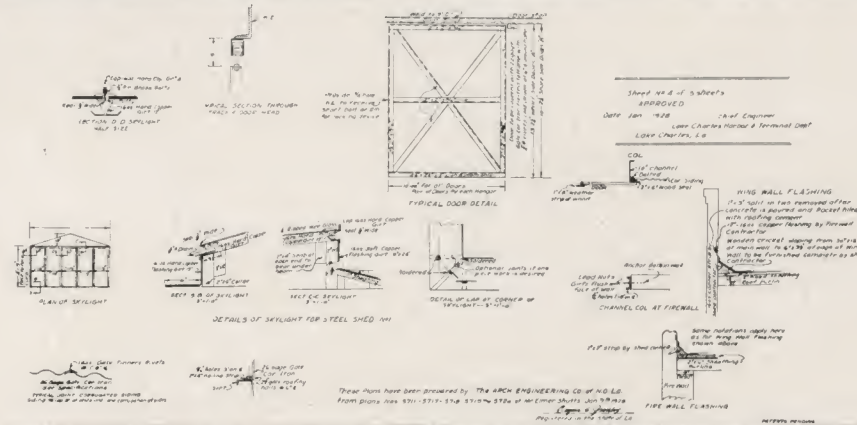
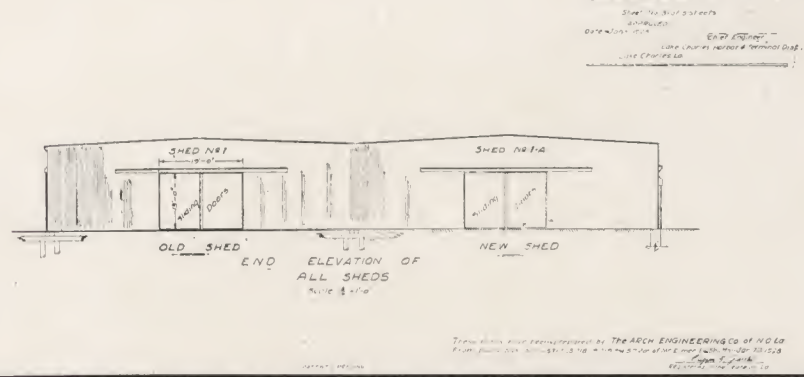
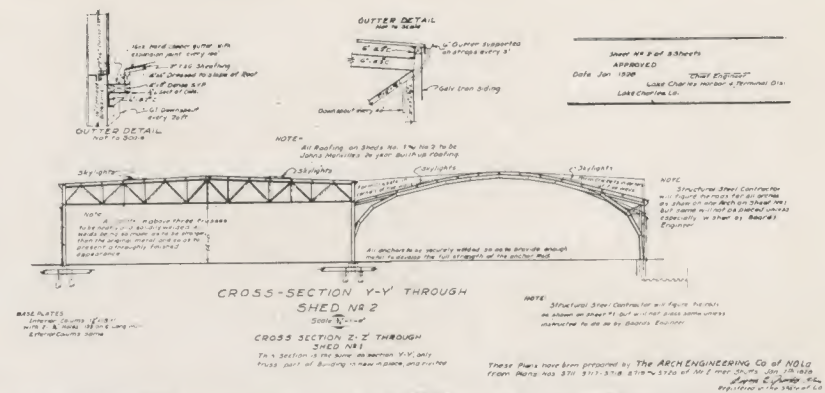
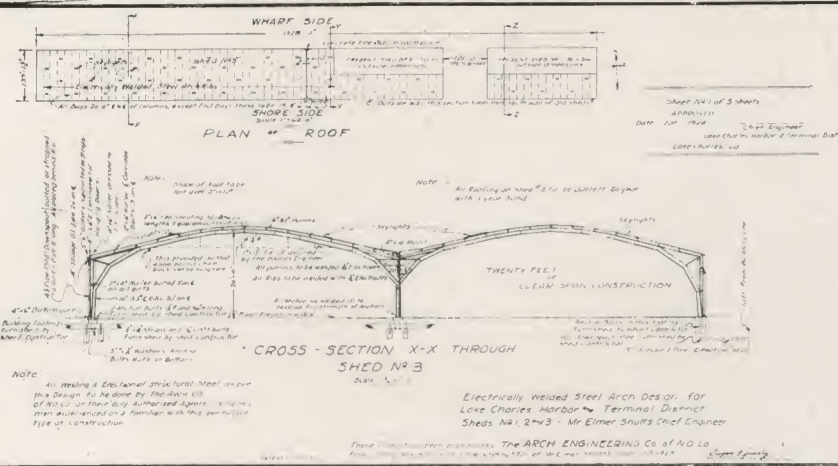


PLOT PLAN
Scale 1"=40'

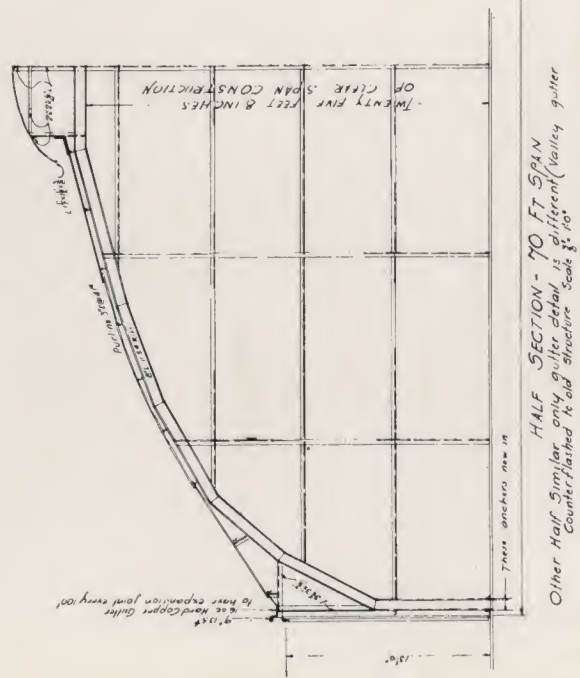
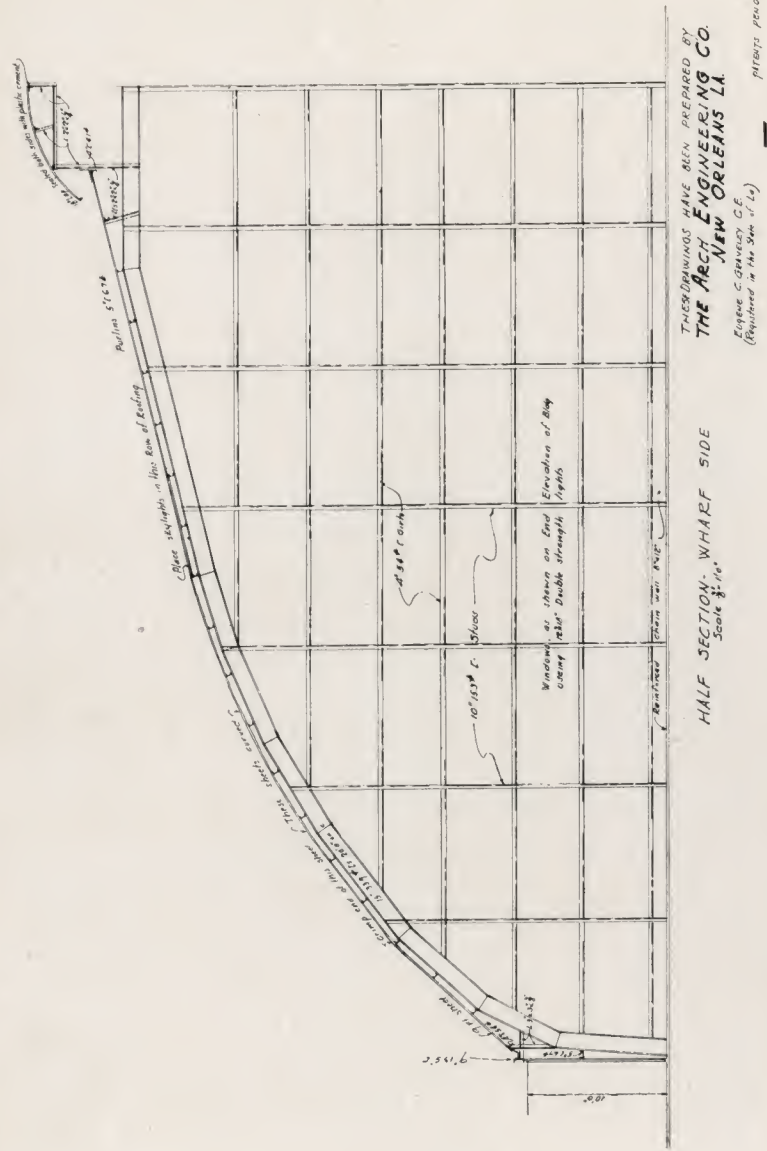
THE PORT OF LAKE CHARLES LA.
THESE DRAWINGS HAVE BEEN PREPARED BY
THE ARCH ENGINEERING CO.
NEW ORLEANS LA.

Nov 20. 1927.

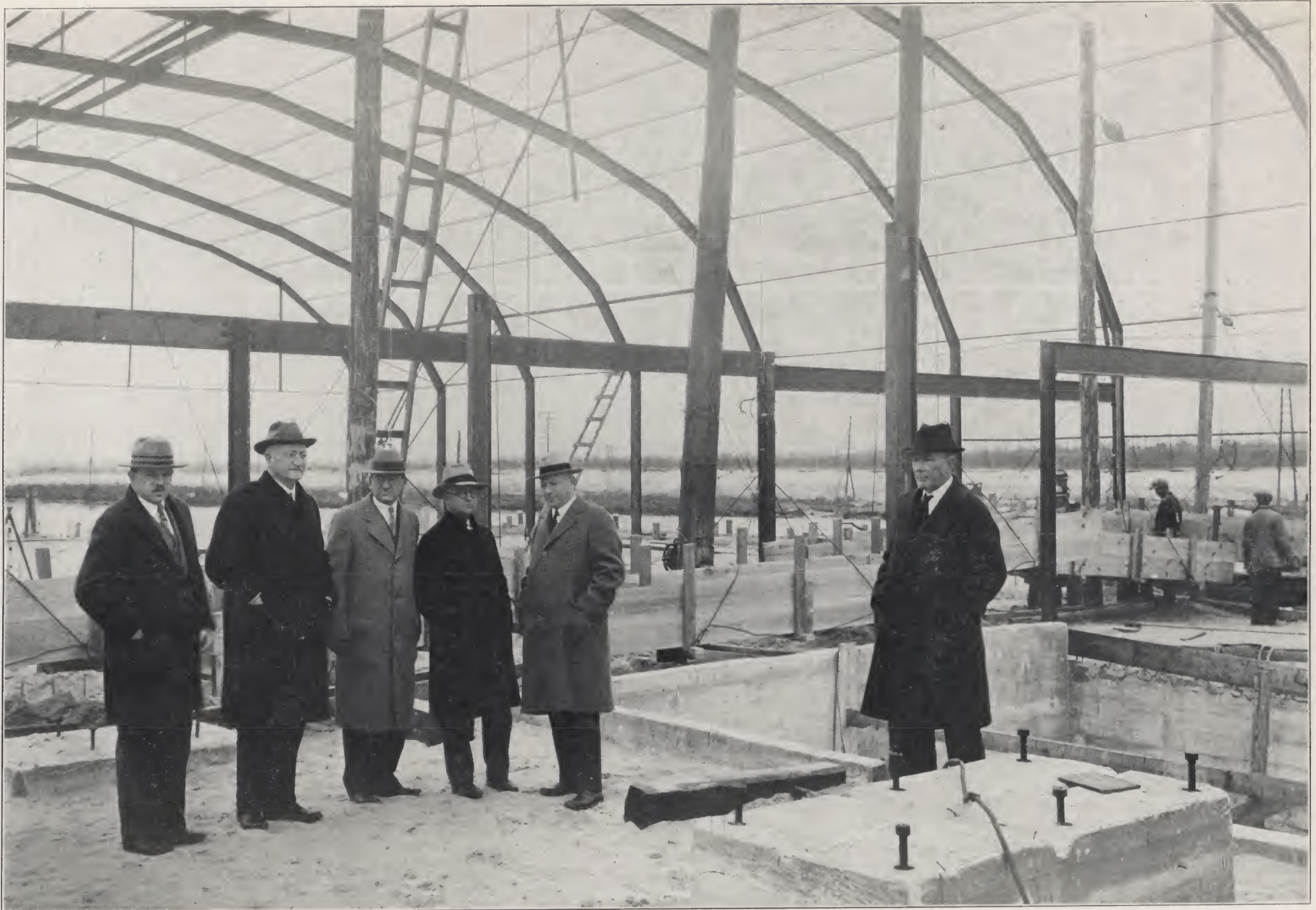
PATENTS PENDING



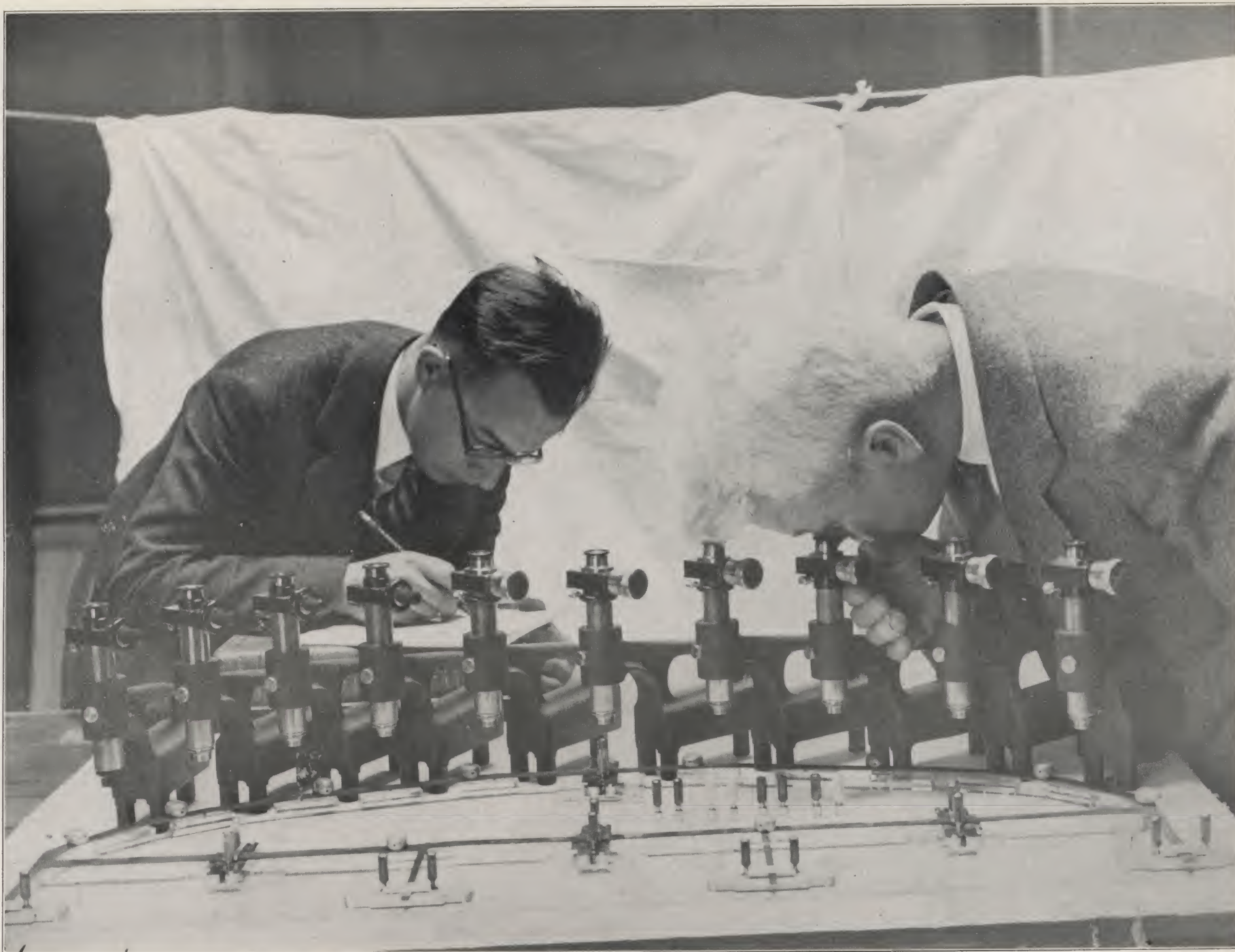
ENDS OF BOTH TRUSS ROOF AND ARCH ROOF MADE TO LOOK ALIKE



THESE DRAWINGS HAVE BEEN PREPARED BY
THE ARCH ENGINEERING CO.
NEW ORLEANS LA.
EUGENE C GRAVELS, C.E.
(Registered in the State of La.)



1. Mr. C. J. Frankel, Steel Contractor, Houston, Texas.
2. Gen. Wm. L. Sibert (Commander of the 1st Div. Overseas) now Chief Engineer and Chairman of the Alabama State Dock Commission witnessing load test on Star Fish & Oyster Building, Mobile, Ala. (Doullut & Ewin, Contractors.)
3. Mr. Chas Davis—Design Engineer—Alabama State Dock Commission.
4. Mr. A. Cummins,—Engineer—Alabama State Dock Commission.
5. Prof. Donald Derickson—Head of the School of Civil Engineering—Tulane University of La., witnessing and approving load tests (Vertical, Side and End pulls) which he personally specified and endorsed.
6. Mr. B. J. Tucker—General Superintendent of the Arch Construction Co., Inc., New Orleans, La.



SHOWING PROFESSOR GEORGE E. BEGGS OF PRINCETON UNIVERSITY
With Assistant analyzing stresses in Star Fish & Oyster Building with the
BEGGS DEFORMATOR APPARATUS

COMBINED UNIT STRESSES
DUE TO
DEAD + WIND LOADS
(SEE NOTE 2)

A	-8400	A'	+6980
B	-22832	B'	+22029
C	+119	C'	-1910
D	-305	D'	-1492
E	-7360	E'	+5513
F	-12135	F'	+10370
G	-8005	G'	+6502

RESULTS OF
MECHANICAL SOLUTION
By
BEGGS' DEFORMETER APPARATUS
OF
ELECTRIC WELDED STEEL ARCH
(STAR FISH AND OYSTER BUILDING)
FOR
ARCH CONSTRUCTION COMPANY)
NEW ORLEANS

By
Geo. E. Beggs
PRINCETON UNIVERSITY PRINCETON, N. J.
SCALE $\frac{1}{2}" = 1'1"$ May 8, 1928

SHOWING RESULTS OF PROF. BEGGS ANALYSES

(Note:—Snow is unknown in Mobile, Ala., where this building was erected, and pitch of roof is too steep for a snow load in any case.)

69 Massachusetts Avenue,
Cambridge Mass. May 16 1928

Mr. Eugene C. Graveley, C.E.,
New Orleans, La.

Dear Mr. Graveley:-

In accordance with your request I have made a mathematical analysis of the stresses existing in the arch frame of the Star Fish & Oyster Building, Mobile Alabama, under dead, snow and wind loads and attached hereto is a sheet showing the results in summary.

Examination of the stresses tabulated shows that the dead load stresses are exceedingly small. The stresses due to wind load on the right, alone, and those due to the combination of dead and wind loads are all small except at section B-B' which carries a maximum compression of 23,000 lbs. / sq.in. The maximum permitted under such circumstances by the specifications of the American Institute of Steel Construction is 18,000 X 1.33 or 24,000 lbs/sq.in., somewhat larger than that figured.

The figured stresses due to dead and snow loads are moderate except at sections B-B' and F-F' where a maximum of 32,000 lbs/sq.in. is noted. It should be said that the loading prescribed to cover the possible burden of snow on the roof seems excessive and it is not probably that this stress will ever be closely approached. Lacking information concerning conditions in Alabama it is not possible to attempt a more precise determination of the probable maximum stress due to snow loading. (Snow unknown in Mobile, Ala., E.C.G.)

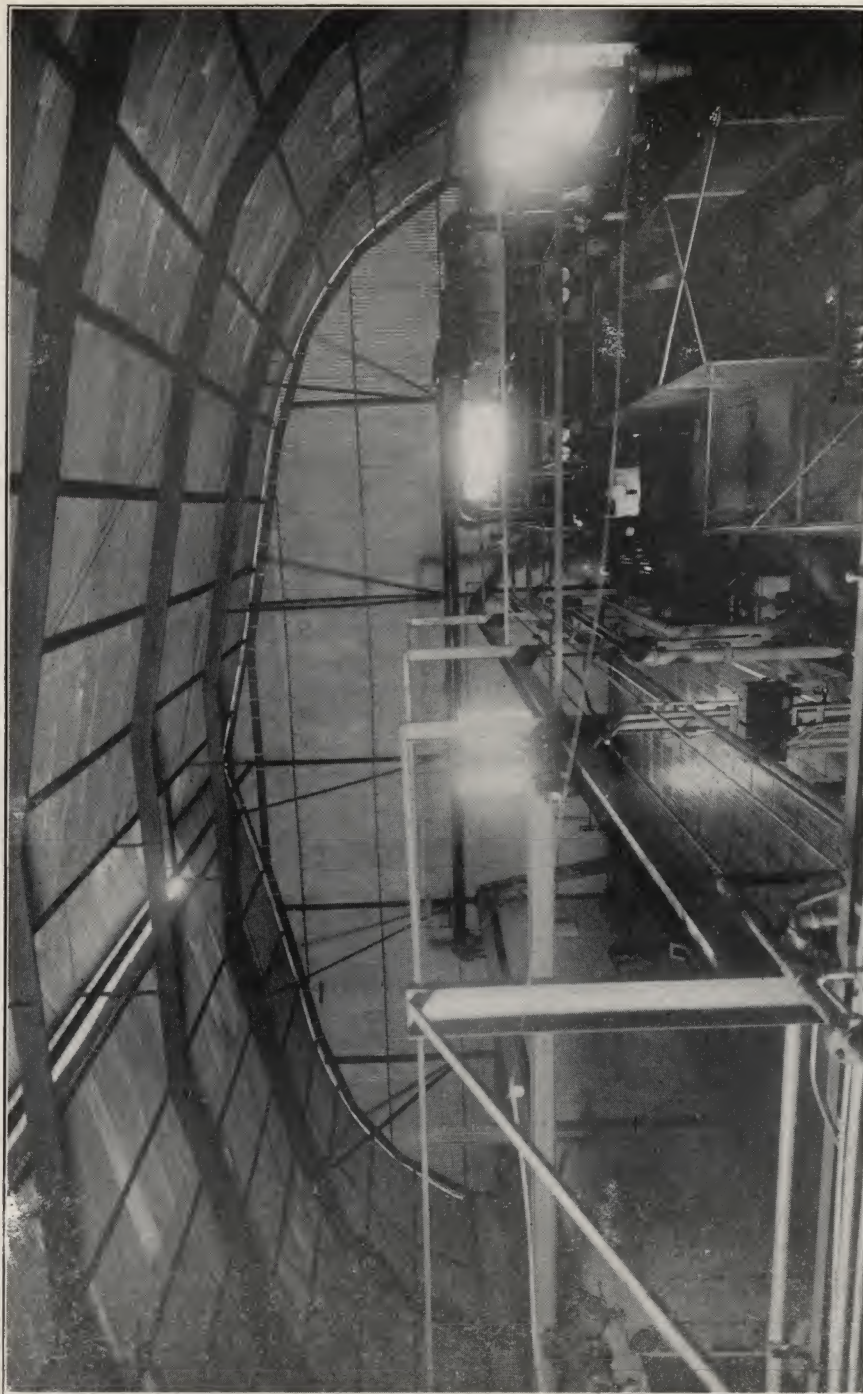
An exact mathematical analysis of this structure is so difficult as to be entirely impracticable. Accordingly my computations have been based on a combination of more or less approximate methods and necessarily are inexact. The effect of one or two of the assumptions and approximations made is very difficult to determine. I should expect these figures however to agree in a general way with the results obtained by mechanical analysis by means of a model with the accuracy in general greater for the latter method.

Very truly yours,

Hale Sutherland

Hale Sutherland. — Assoc. Prof. Structural
Engineering. —
Mass. Institute of
Technology.

* This does not take into
consideration method of construction
which induced residual and compensating
stresses, which reduced these figures to
the allowable amount. E.C.G.



COMPLETED PLANT OF STAR FISH & OYSTER CO., AT MOBILE, ALA.

Note York Refrigerating equipment—Crane run-way—cold storage pit and cold storage Rooms on side.
THE COLD STORAGE ROOMS WERE ALL CORK-LINED.

MEMBER AMERICAN SOCIETY OF CIVIL ENGINEERS

MEMBER LOUISIANA ENGINEERING SOCIETY

DONALD DERICKSON, C. E.
ENGINEERING BUILDING—TULANE UNIVERSITY
P. O. STATION 20
NEW ORLEANS, LOUISIANA

December 11th, 1927.

Doullut and Ewin, Inc.,
Civil Engineers and General Contractors,
414 Meagher Building,
Mobile, Alabama.

Attention of Mr. James P. Ewin.

Dear Sirs:

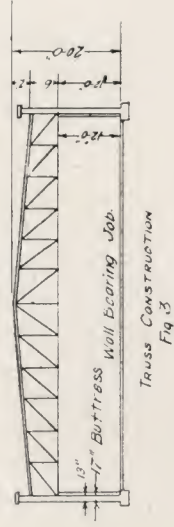
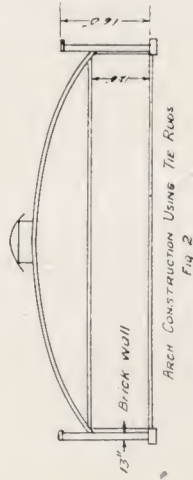
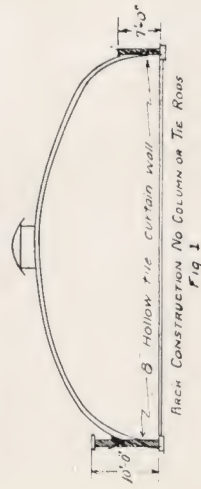
This is to certify that on December 10th, 11th, 12th, 1927, the structural steel framework (Exclusive of interior beams and columns.) of the building which you now have under construction for the Star Fish and Oyster Company at Mobile was subjected to test loading. The object of the tests being to determine from actual loading the ability of the roof arches to sustain any reasonable loading to which they may be subjected as well as the capacity of the structure to resist such longitudinal and transverse forces as the wind might be expected to develop.

As a result of these tests which I personally witnessed, and which were made in accordance with my advice and suggestions, it is my opinion that the framework will perform the service for which it is intended with a reasonable factor of safety.

Respectfully submitted,

Donald Derrickson
DONALD DERICKSON

SHOWING SAVING EFFECTED, BY THE USE OF ARCH. CONSTRUCTION, IN MASONRY WALLS



ARCH CONSTRUCTION CO INC
N. O. L. A.

PATENTS PENDING.



SHOWING END PULL AT MOBILE

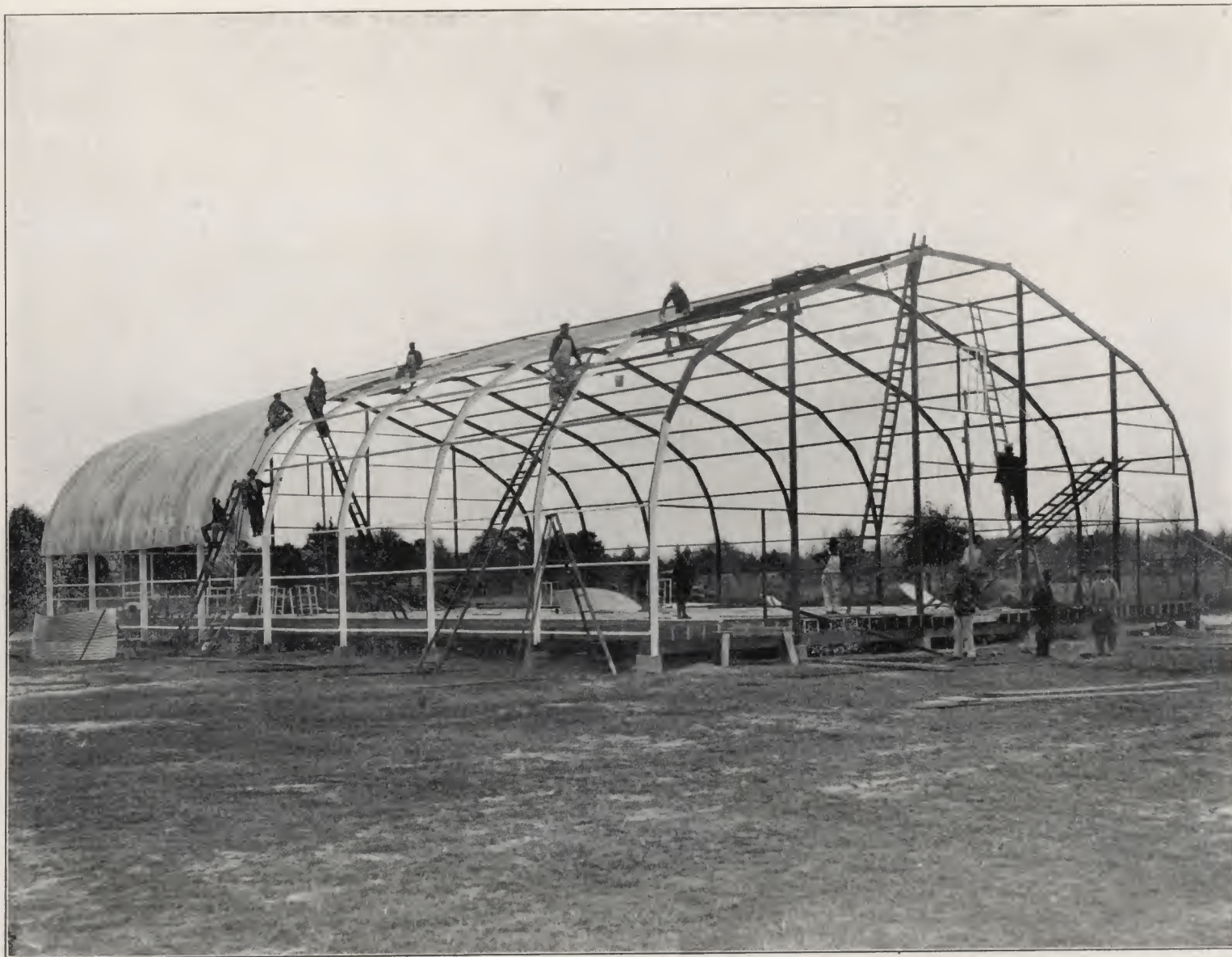


SHOWING VERTICAL LOADING OF 35,000 LBS., ON A
10 INCH-15.3 POUND CHANNEL SPANNING 75 FT.



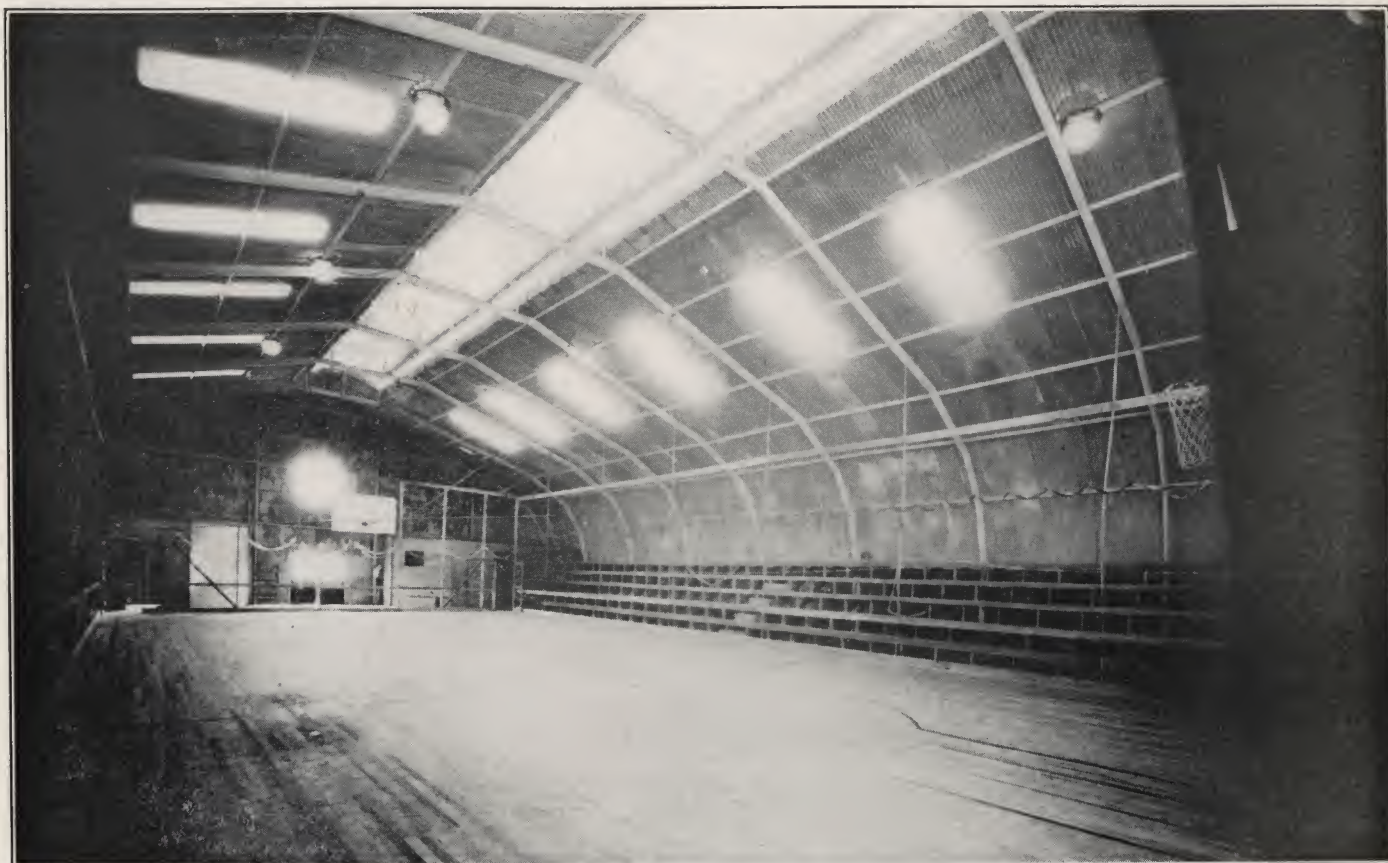
SHOWING SIDE PULL.

SHOWING VARIOUS TESTS OF THE STAR FISH AND OYSTER CO., AT MOBILE.



GYMNASIUM AT MARIANA FLORIDA

Note Progress—Welder has just finished the end—Painters one day behind with each coat and roofers covering second coat of paint as soon as dry.



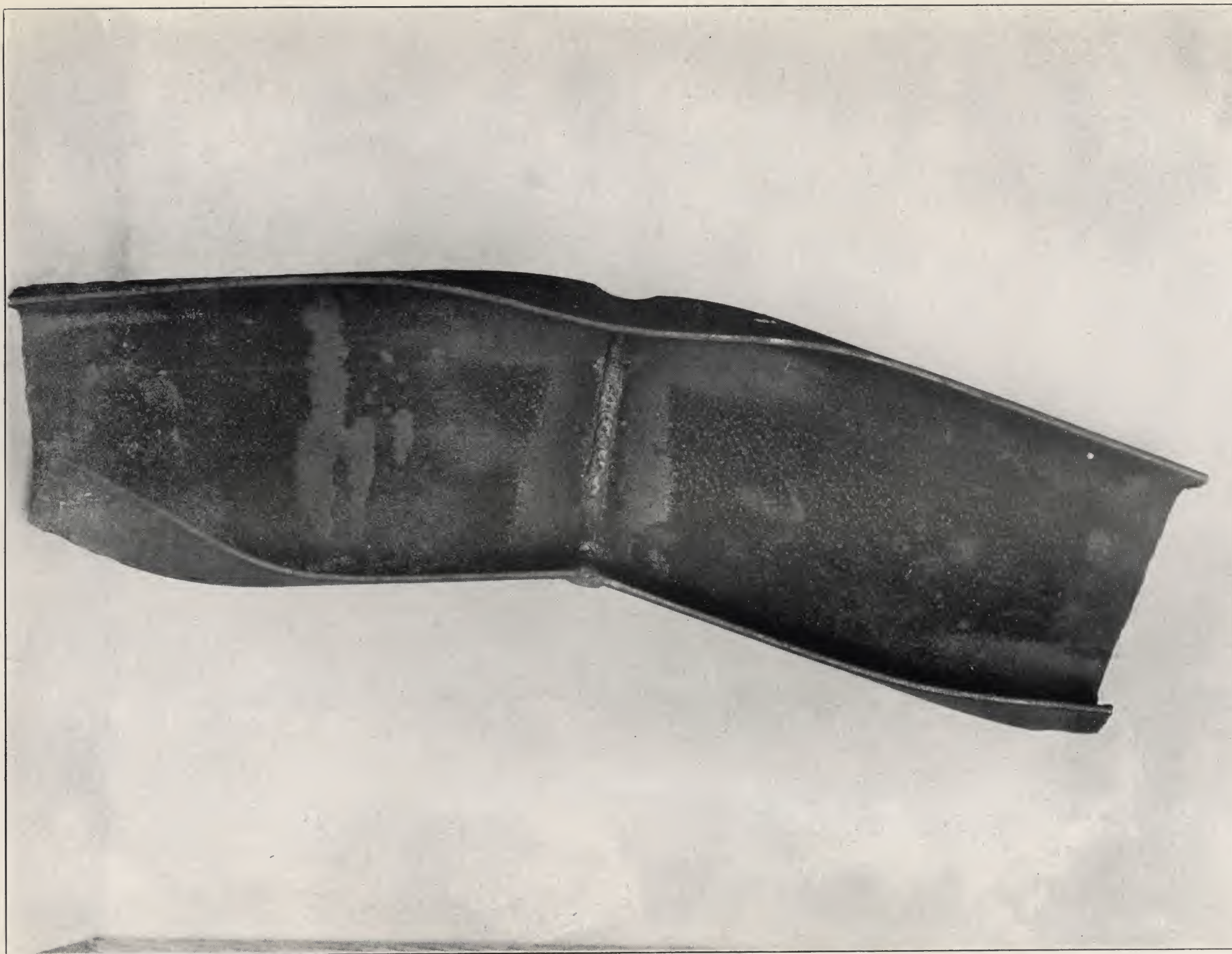
INTERIOR OF GYMNASIUM AT MARIANNA, FLORIDA

Note how high ARCH Ceiling prevents fouls due to the ball hitting trusses and aids lighting.



ONE OF OUR MUNICIPAL STABLE JOBS AT NEW ORLEANS, LA.

A cool Corrugated Asbestos Roof combined with our ARCH gives the Mules a cool nights rest after a hard hot summer day.



SECTION OF RIB CHANNEL AT JOINT CRUMPLED UP IN BULL-DOUZER AT PLANT OF CANAL STEEL WORKS, NEW ORLEANS, LA.

Note: Weld remained in perfect condition though web and flanges had failed completely—9 Inch—18.4 Pound Channel.

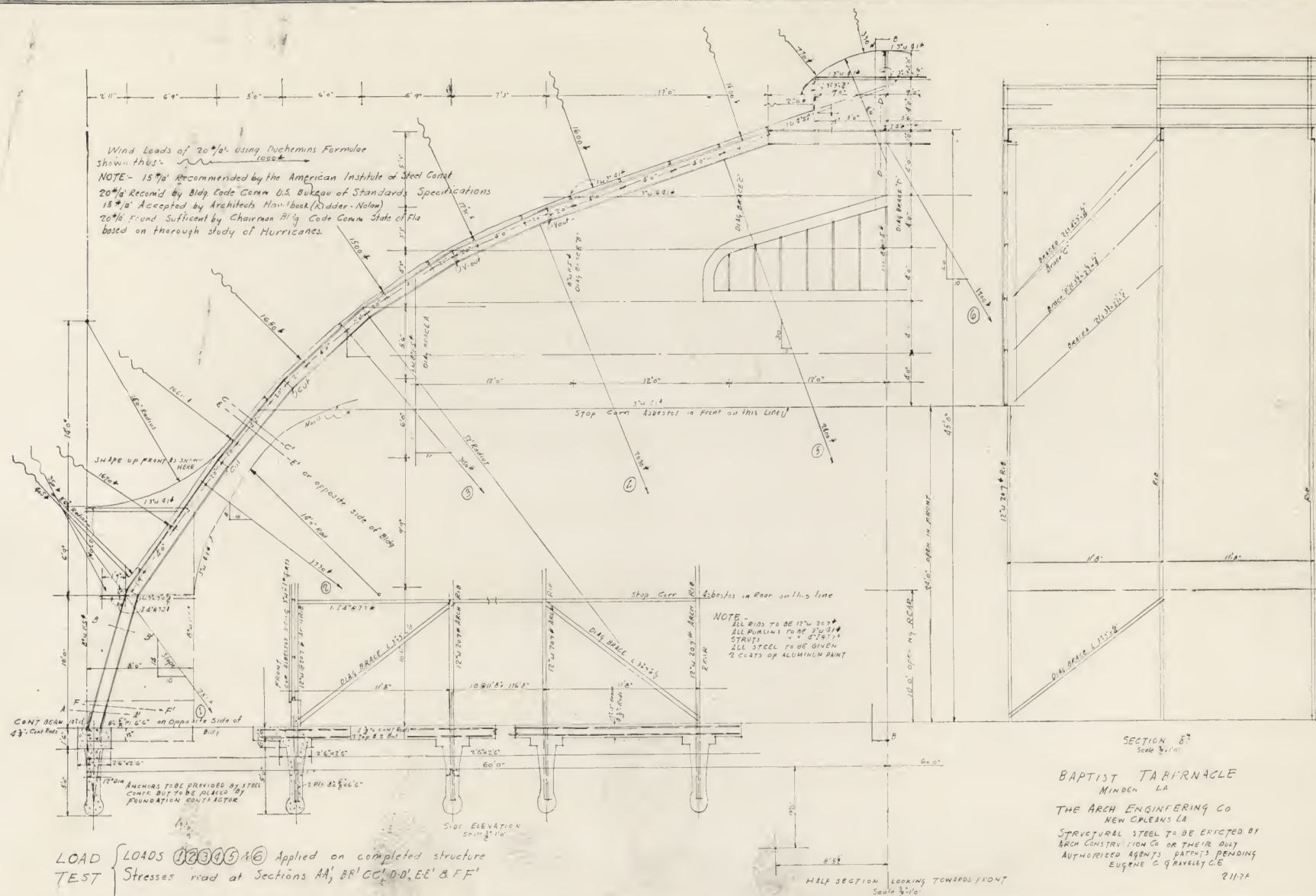


BAPTIST'S AUDITORIUM—TABERNACLE AT MINDEN, LA.
Holds nearly 4,000 people
Showing Johns-Manville Corrugated Asbestos Roofing.



MINDEN TABERNACLE'S OPENING MEETING

Claimed to have the "most Marvelous Accoustic of any Auditorium in the South."





CROWD AT MINDEN WITNESSING AND APPROVING LOAD TEST



SHOWING DIAGONAL WIND PULLS USING DUCKEMIN'S FORMULAE
Note the Stresses being read.



THE FIRST TIME IN THE HISTORY OF ALL TIME THAT A 12 INCH—20.4 LB. CHANNEL EVER SPANNED 122 FT. AND GOT AWAY WITH IT!



10,000 POUNDS ADDITIONAL WERE ADDED AFTER
TAKING OF THIS PICTURE

A. S. MONTZ
ARCHITECT
740 POYDRAS STREET
NEW ORLEANS

June 12th, 1928.

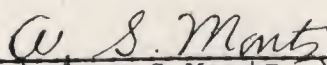
Mr. W. R. Fogle, Jr., Chairman,
Building Committee,
Ferguson Memorial Tabernacle,
1st. Baptist Church, Minden, La.

Dear Mr. Fogle;

A study of the stress readings taken during the loading of the Arch Ribs on the Tabernacle at Minden showed that the maximum stress under the Wind Loading Specified by the American Institute of Steel Construction was 15,000 pounds per square inch; whereas they allow for wind stresses 24,000 pounds per square inch, showing that the ability of the Structure to withstand Wind Loads (Practically the only load that this structure will ever be called upon to carry, except its own dead load) is well within the limits employed in the standard designs.

As the Roof Load applied was over five- nearly six- times the weight of the roofing (plus purlins etc.) that is being employed it is evident that the structure is amply capable of carrying any loading to which it might reasonably be expected to be subjected, with the usual Factor of Safety.

Most Respectfully,



Andrew S. Montz,
Architect.



December 7, 1928.

Mr. Eugene C. Graveley,
Arch Construction Co.,
New Orleans, La.

Dear Mr. Graveley:

Among the many other interesting and satisfactory features of the Tabernacle, which you designed and constructed for us, I am especially delighted with the acoustics.

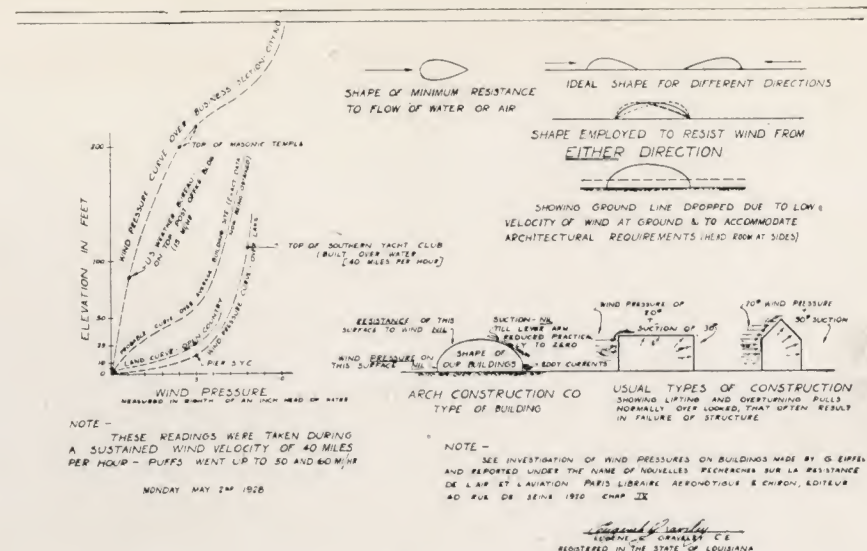
Last summer during my revival we had as many as three thousand people in attendance, and I am told by many who occupied the rear seats that they could hear perfectly during the entire service.

My people are delighted with the building.

Very truly yours,

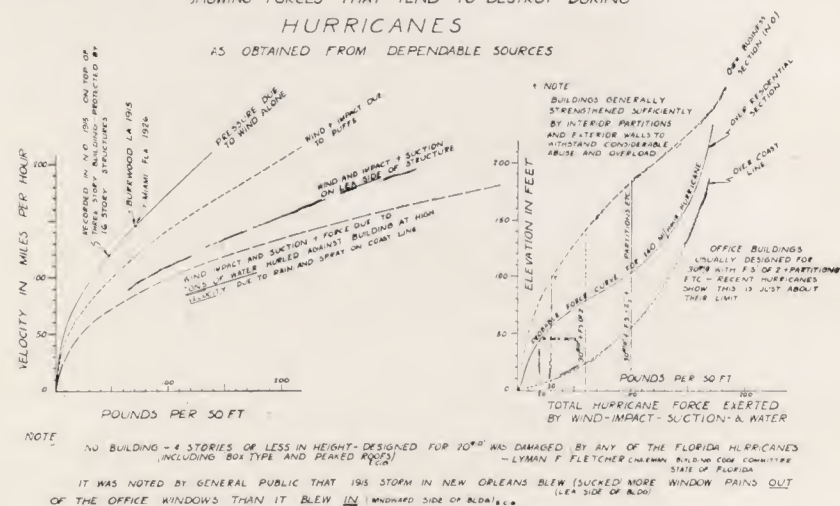
Frank Triggs

FT:RC.

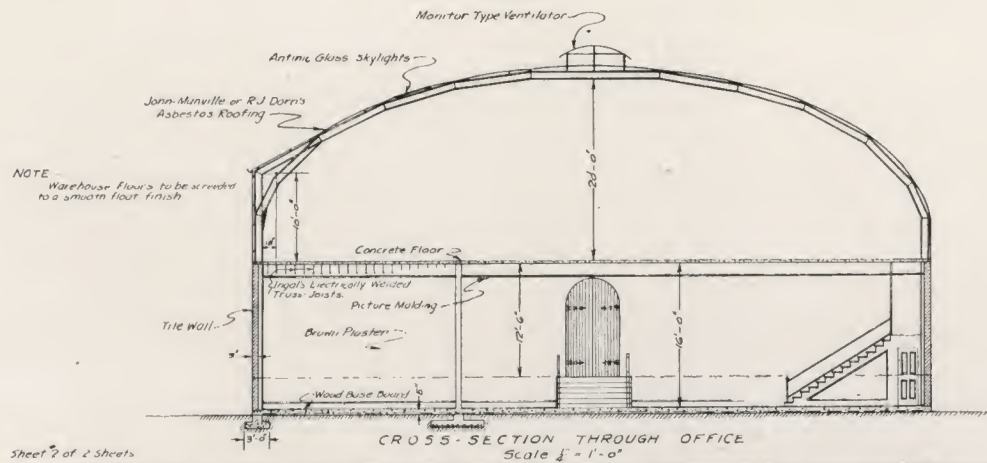


SHOWING FORCES THAT TEND TO DESTROY DURING HURRICANES

AS OBTAINED FROM DEPENDABLE SOURCES

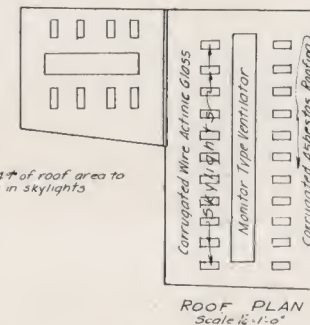
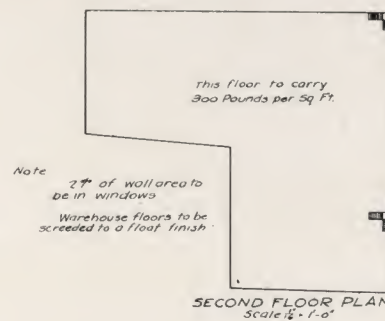
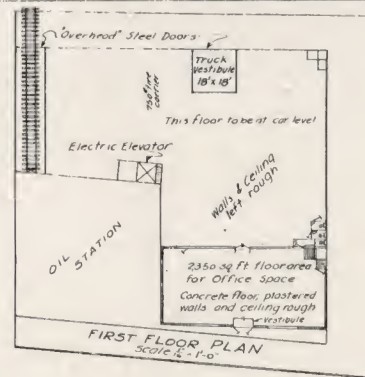


SHOWING SOME OF THE ORIGINAL RESEARCH DATA USED IN THE
DESIGN OF THESE BUILDINGS.

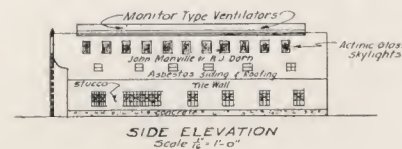


These Plans have been prepared by
The ARCH ENGINEERING Co. of NOLA for
Mr. B.A. Flanders
Location: No. Carrollton Ave. and St. Louis St.
Leasee: FISK TIRE CO. NO. LA
Mr. A.S. Monte, Architect
March 27th 1928

PATENTS PENDING

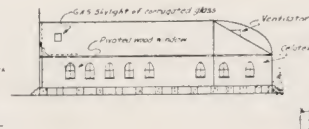
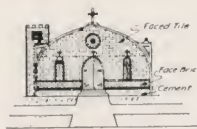
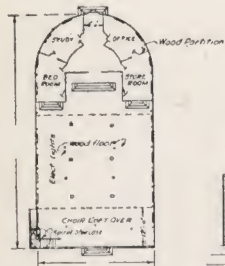


FISK TIRE CO. BUILDING
Carrollton Ave. & St. Louis St. NO. LA
These plans have been prepared for
Mr. B.A. Flanders by
The ARCH ENGINEERING Co. - NOLA
Engineer C. Monte, C.E.
Registered in State of La.
Mr. A.S. Monte, Architect



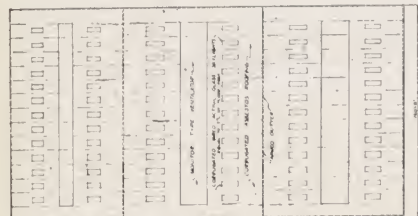
PATENTS PENDING

SHOWING TYPICAL TWO STORY DESIGN

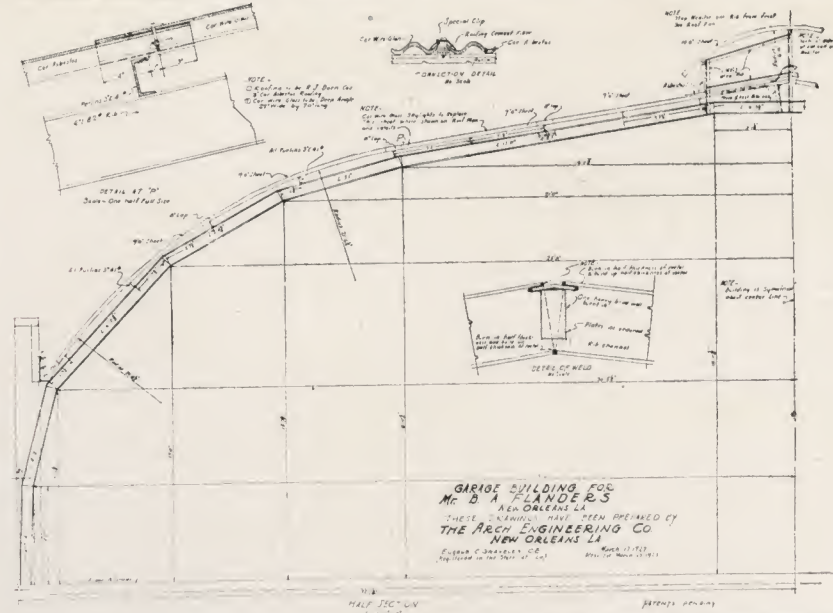


PROPOSED CHURCH
ARCH ENGINEERING CO.
NEW ORLEANS, LA.
DESIGNED BY
ARCH ENGINEERING CO.
NEW ORLEANS, LA.
JUNE 1917

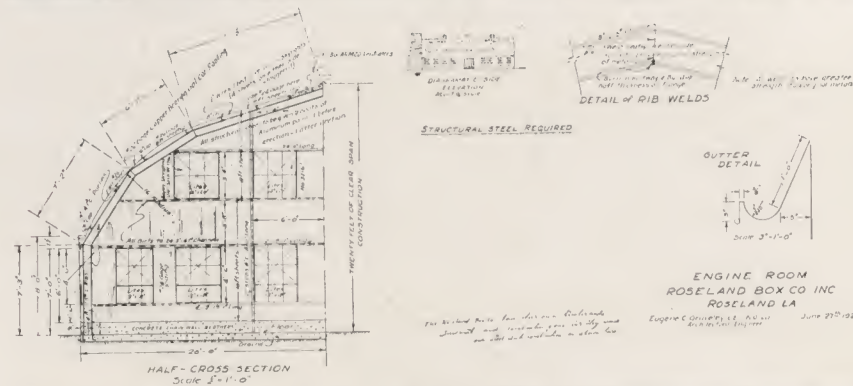
ROMAN CATHOLIC CHURCH
Designed for the Franciscan Order at Venice, La.



SHOWING ABUTTING ARCHES



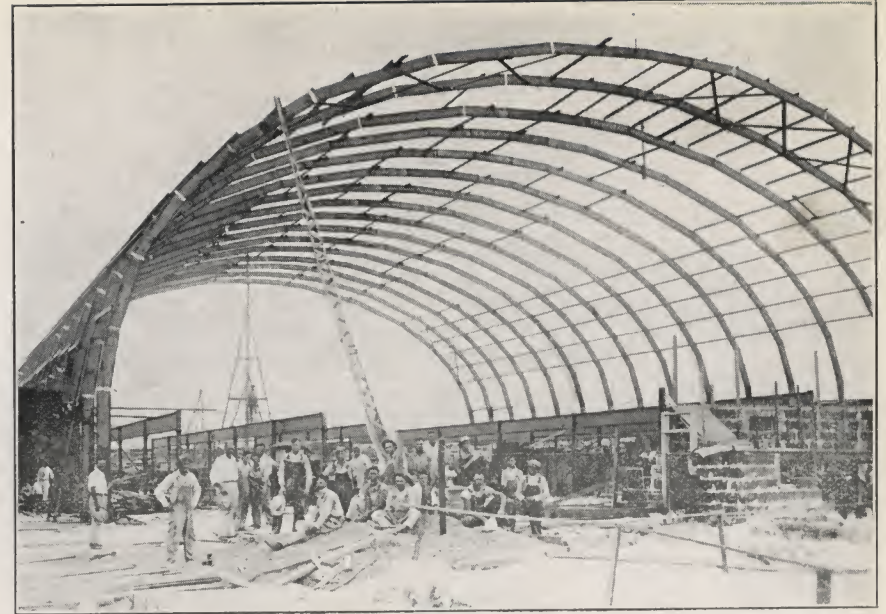
SHOWING AN IDEAL ROOFING—CORRUGATED ASBESTOS
Manufactured by Johns-Manville, R. J. Dorn, Ambler and The Philip Carey Co.



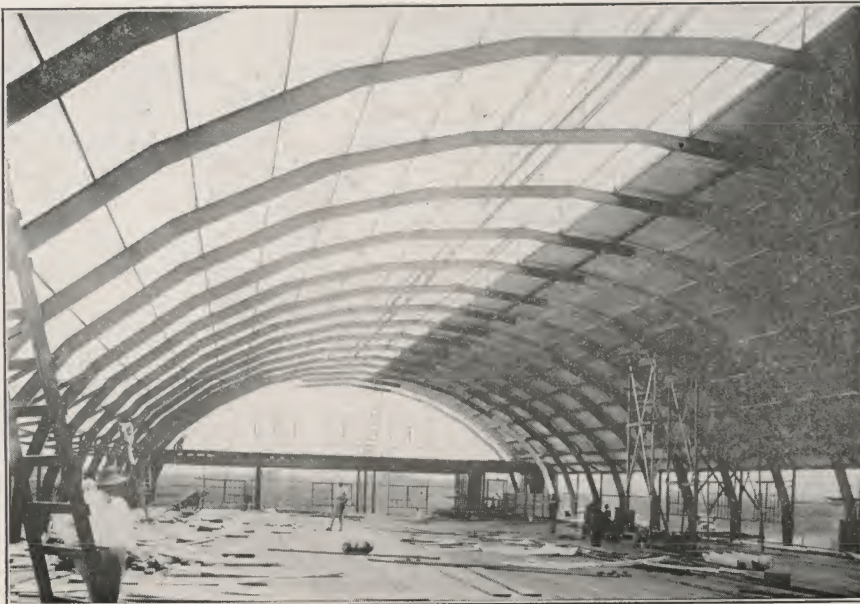
ON THIS JOB OUR PRICE BEAT WOOD CONSTRUCTION THOUGH THE BOX CO., HAD THEIR OWN TIMBER LAND AND OWN CONSTRUCTION GANG!!!



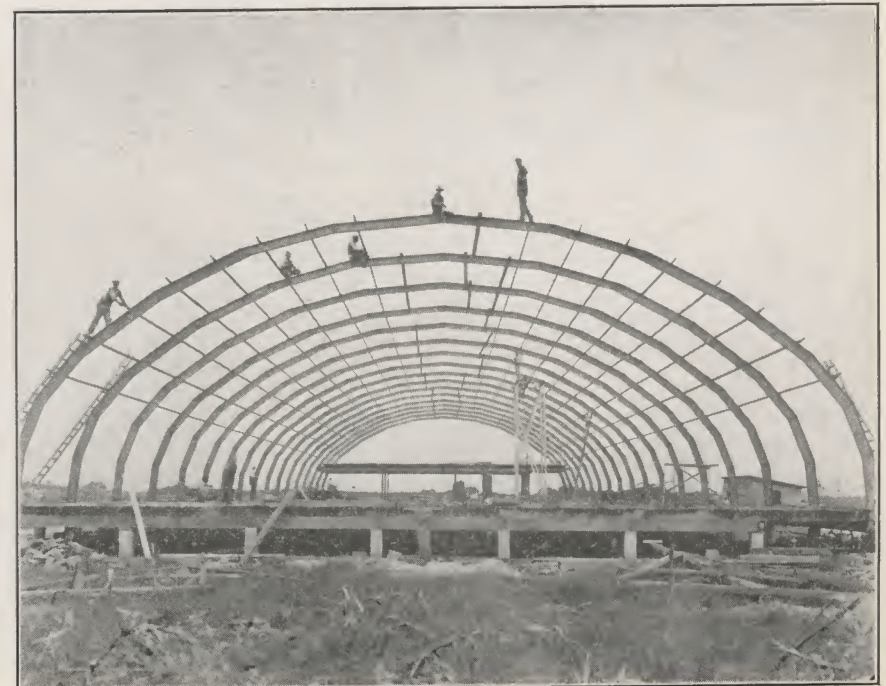
PACKING HOUSE IN FLORIDA FOR THE
SEABOARD AIRLINE RAILROAD



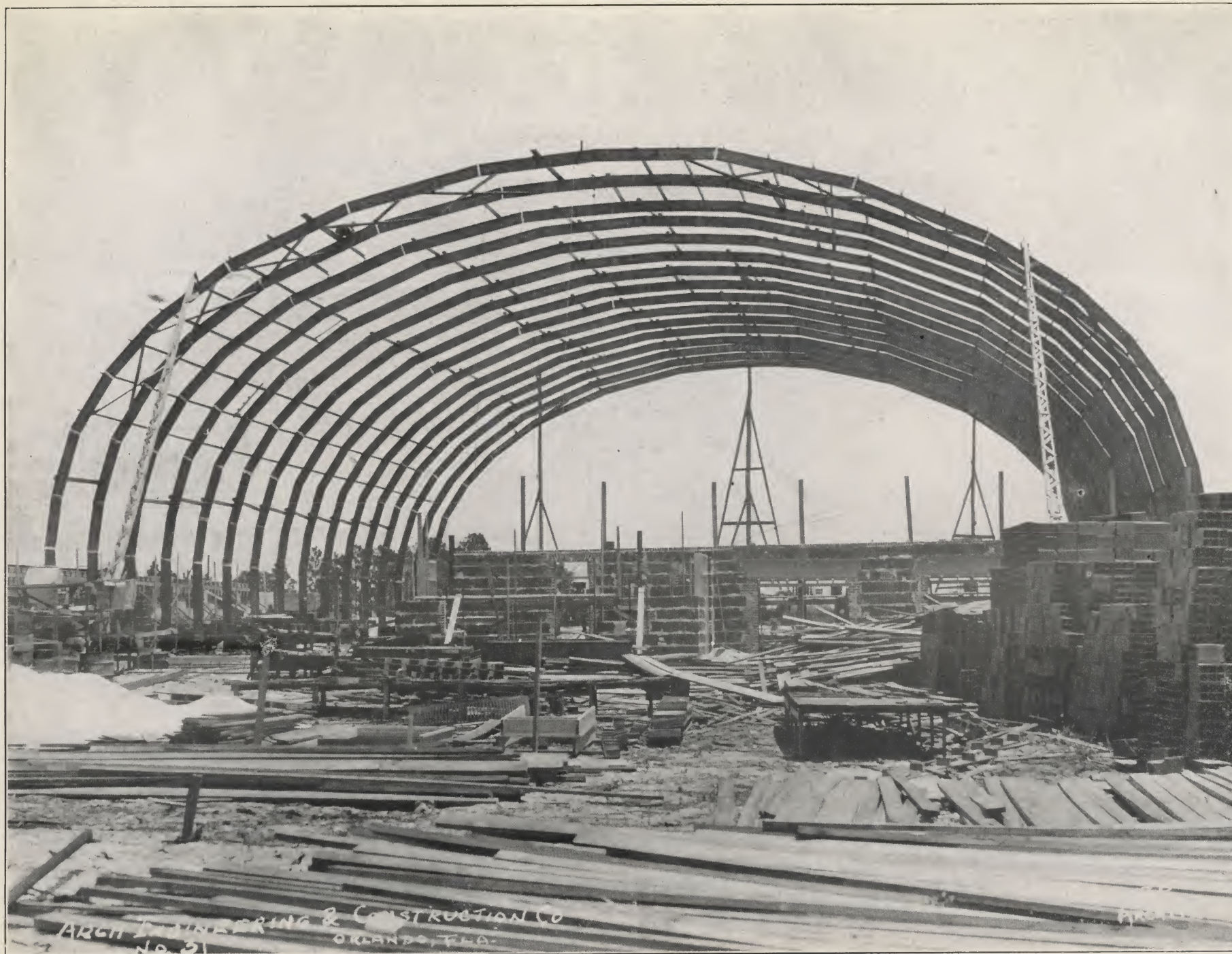
30" STEEL I-BEAMS IN FLOOR SYSTEM WERE CRUMPLED UP LIKE TIN CANS BY LAST JULY HURRICANE, BUT OUR ARCH CONSTRUCTION REMAINED UNHURT—DR. PHILIPS—FLORIDA.



ANOTHER PACKING HOUSE IN FLORIDA FOR THE
SEABOARD AIRLINE RAILROAD



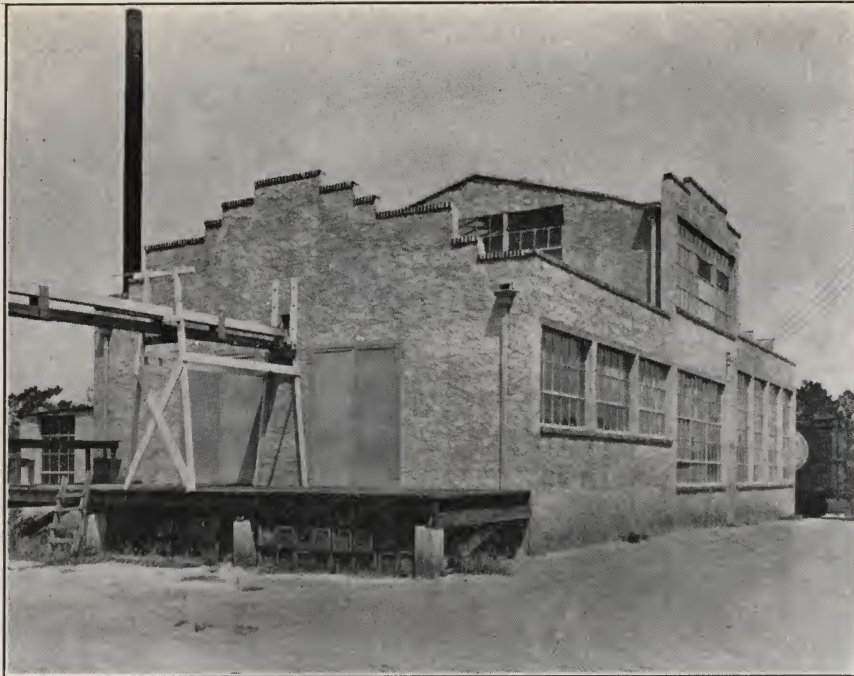
CONTRACTS WERE LET LAST SPRING FOR 9 PACKING HOUSES IN FLORIDA IN SIX WEEKS OUR CONSTRUCTION WAS USED ON 3 OF THEM INCLUDING THE LARGEST.



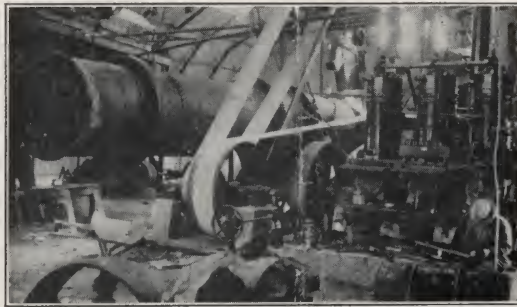
116 FT. SPAN 203 FT. LONG—DR. PHILIPS PACKING PLANT—WINTER GARDEN, FLA.
 LARGEST WELDED ARCH STRUCTURE IN THE WORLD.
 We have completed Designs up to 300 Ft. of Clear Span Construction.



CLAIMED TO BE THE LARGEST AND FINEST PACKING HOUSE IN THE WORLD.



JUICE PLANT AT HCWEY IN THE HILLS—FLORIDA

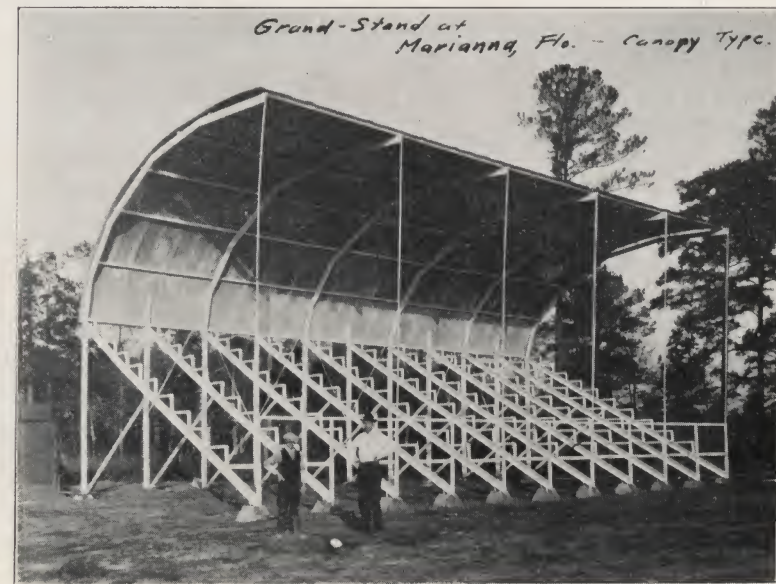


Shafting carrying a 16 INCH BELT was carried
by these 6 inch channels spanning 65 feet
without vibration !!!

Complete Explosion of this Full-Diesel Engine
failed to hurt our
ARCH CONSTRUCTION !!!



SHOWING OUR ARCHES USED WITH WOOD SHEATING
AND ROLL COMPOSITION ROOFING



CANOPY TYPE OF GRANDSTAND



100 FT. SPAN THAT OWNER CLAIMED SAVED HIM \$2,500.00.



SERVICE DRAYAGE GARAGE—NEW ORLEANS, LA.



SHOWING THE SIMPLICITY OF ERECTION—TWO GIN POLES AND A COUPLE OF BLOCK AND TACKLE SWING THE ARCHES IN PLACE. WE HAVE NEVER USED TIE-RODS SINCE COMPLETING THIS BUILDING—THEY HAVING BEEN PROVED ABSOLUTELY UNNECESSARY WITH OUR TYPE OF CONSTRUCTION.



75 FT. DOOR IN 100 FT. SPAN—OUR SECOND JOB.

FRED T. WILLIAMS, CHAIRMAN, SENIOR
L. J. STANLEY, LAWYER
M. E. TERRY, CLERK

DEPARTMENT OF PUBLIC INSTRUCTION
SEMINOLE COUNTY FLORIDA
T. W. LAWTON
Secretary and Superintendent
COURT HOUSE
SANFORD, FLORIDA

October 31, 1927.

Arch. Engineering & Construction Co.,
133 North Lake Street,
Orlando, Florida.

Gentlemen:-

The officials and parents of the Grady School are delighted with the building recently erected by you for Mr. J. B. Seaboard, and so far as I can learn the building is perfectly satisfactory in every respect.

Many parents interested in school athletics have come from other places to view this building, and all comments have been most favorable. With best wishes for your continued success, I am

Very respectfully, yours,
T. W. Lawton (Signature)

L/c

CHARLES CHOATE, A.I.A.
ARCHITECT
SUPERVISING ARCHITECT
CENTRAL DISTRICT OF FLA.

F. J. KENNARD & SON
ARCHITECTS & ENGINEERS
TAMPA, FLA.
ASSOCIATE

FRED E. FIELD
ARCHITECT AND
STRUCTURAL ENGINEER

CHOATE AND FIELD, ARCHITECTS

TELEPHONE 3432
307 NORTH ORANGE AVENUE
ORLANDO, FLORIDA

Oct. 31, 1927.

Arch Engineering Co.
New Orleans, La.

Dear Mr. Graveley:

The latter part of last week we gave your brother the original drawing showing results of calculations and method of testing the arch installed in building for Mr. Hoeler on West Central Ave. Orlando, Florida; we also gave him a letter with the tabulated results of the test. He is to forward to you the drawing and letter.

These calculations vary from those which we made originally and from the calculations made by Mr. Kresley, whom your brother employed to represent him.

We believe that these final calculations represent fairly exact conditions and we hope the results are satisfactory to you.

Enclosed herewith you will find our calculations so that you will have our complete figures.

Very truly yours

Choate & Field

F.E.P.

Fred E. Field

CLASS OF SERVICE
This is a full-rate Telegram or Cablegram unless its character is indicated by a symbol in the check or in the address.

NEWCOMB CARLTON, PRESIDENT

J. C. WILLEYER, VICE PRESIDENT

The filing time as shown in the date line on full-rate telegrams and day letters, and the time of receipt at destination as shown on all messages, is STANDARD TIME.
Received at 915 Franklin St., Houston, Texas

NSA 118 51 EXTRA NEWORLEANS LA

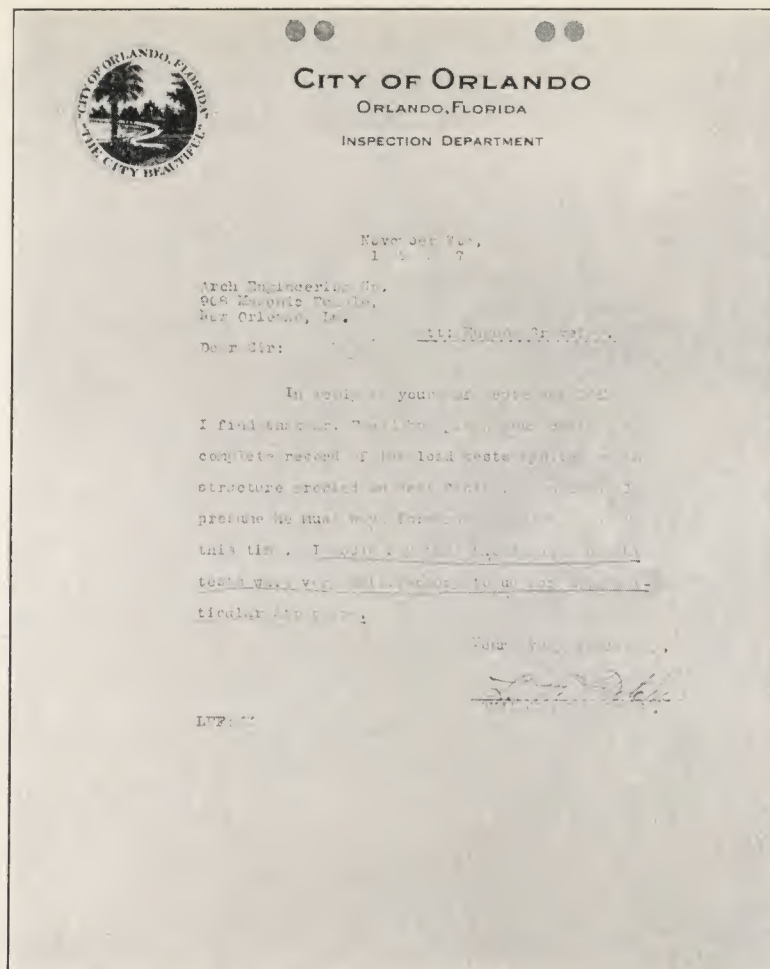
EUGENE C GRAVELEY

CARE W A DOWDY CITY ARCHITECT HOUSTON TEX.

THE CITY OF NEWORLEANS IS NOW ERECTING BUILDING USING YOUR DESIGN
AND I BELIEVE MR DOWDY WILL MAKE NO MISTAKE IN USING YOUR DESIGN
ON HIS DEMOCRATIC CONVENTION AUDITORIUM IN FACT I BELIEVE YOUR DESIGN
IS IDEALLY SUITED FOR SUCH A BUILDING BECAUSE OF ACCOUSTICAL PROPERTIES
A S MONTZ ARCHITECT FOR CITY OF NEWORLEANS.

Form 1201

SYMBOLS	
DL	Day Letter
NM	Night Message
NL	Night Letter
ND	Deferred
CL	Cable Letter
WEL	Week End Letter



WELDING

Welding has been used ever since Mr. Tubalcain—the first worker in Metals—made his first masterpiece for Mr. Stone Hatchet. Indeed, all steel is welded when the pieces of pig iron are melted together in the crucible.

The chains on the Spanish Galleons were Welded as were all chains since the beginning of Time.

Dr. S. A. L. Waddill, C. E., (Frequently considered to be the most eminent Structural Engineer of Today—with offices in Shanghai—Melbourne, Australia—Paris, Etc.,) claims "Why Welding is alright. I use it on the eye-bolts on my bridges all over the World."

The Baldwin Locomotive Works in Philadelphia is now building Locomotives (one of them recently installed on the Georgia Northern Railway) of entirely electrically welded Steel.

The German Government has just recently completed what is generally conceded to be the most modern Cruiser (10,000 tons) of entirely electrically welded steel and saved enough weight in the laps and splices to increase the size of armament and amount of ammunition to be carried.

The Los Angeles Times advises us that the six story addition to the Pacific Mutual Life Ins., Co., Building in Los Angeles has just been satisfactorily completed of electrically Welded Steel which eliminated the nerve-racking noises of the riveting gangs in the downtown district during its construction.

DEFLECTION

The deflection in these ARCHES is always less than 1/360—the allowable deflection for plastered ceilings. (See Load test reports).

EXPANSION

The expansion is practically all UPWARD; and in no case as great as that of a steel truss or a steel beam.

VIBRATION

With heavy shafting suspended from these structures there is no vibration noticable even at Full Load.

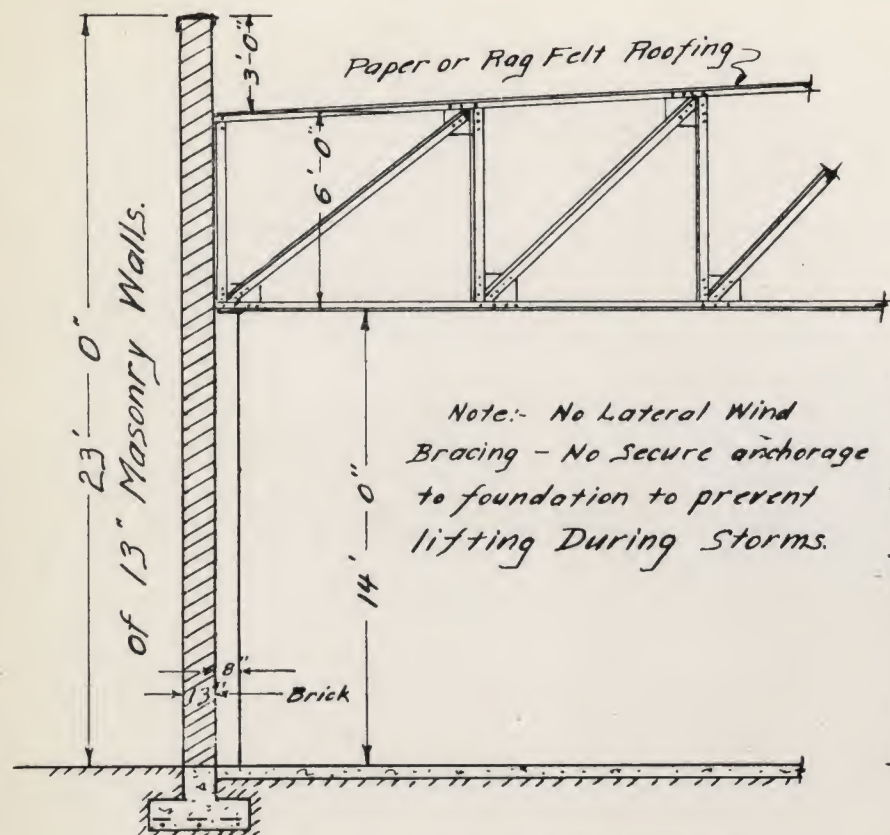
SETTLEMENT

These completed structures have retained their shape when supported at only three points showing that they are admirably well suited for Dock Sheds and other construction where there is liable to be unequal settlement of the Foundation due to either unequal overloads or due to poor soil conditions.

EARTHQUAKES

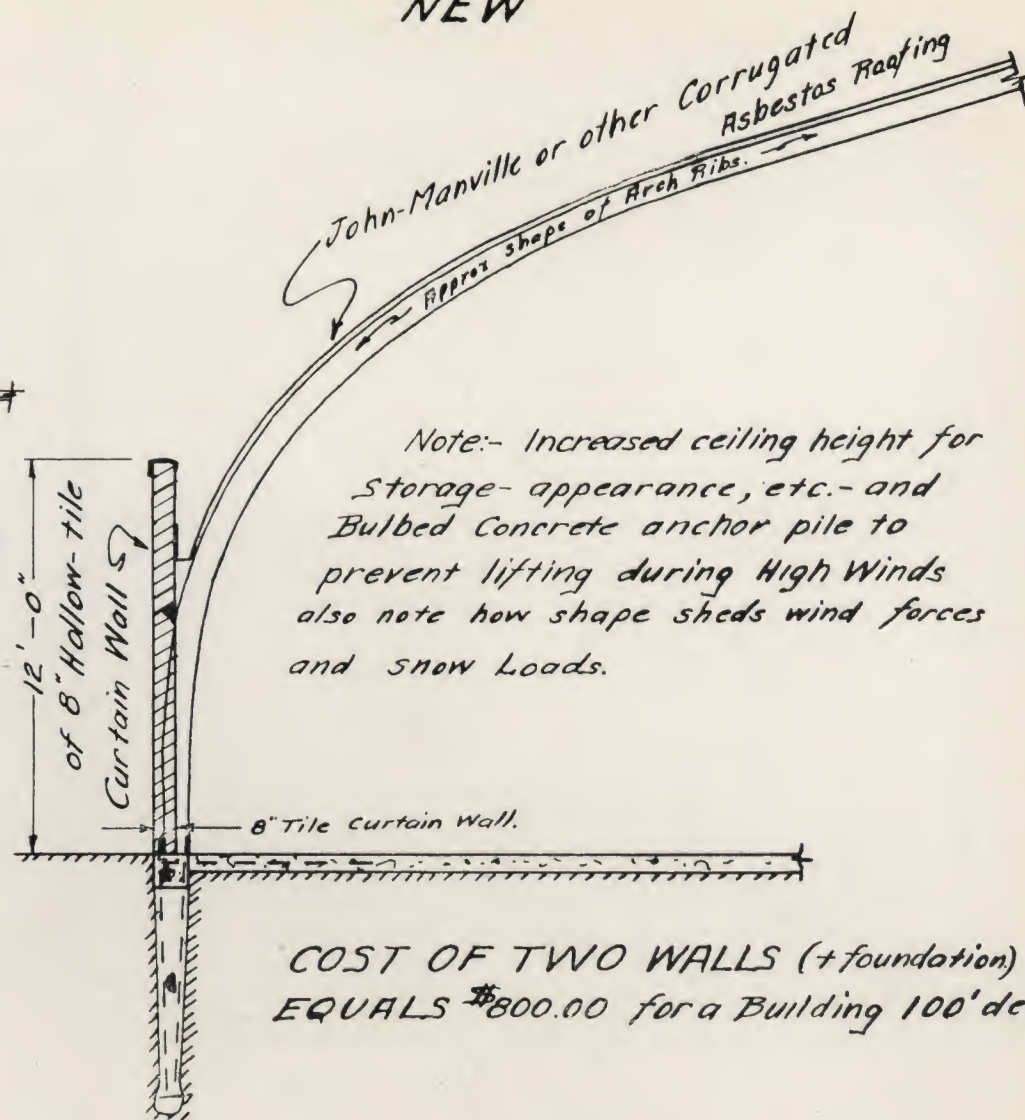
Due to the welding making the completed structure one solid piece of steel; and due to the springiness of the structure due to the shape, this type of construction is considered to be the safest obtainable for places subject to Earthquakes.—In one building the explosion of a Full Diesel Engine hurled a 2,000 pound projectile directly against a 6 inch channel rib spanning 65 ft., glanced off, and rose a hundred feet in the air without doing any harm to our ARCH CONSTRUCTION save to slightly bend the lower flange of the rib.

OLD TYPE



COST OF TWO WALLS (and found'n)
\$4,600.00 for a building 100' deep.

NEW



COST OF TWO WALLS (+ foundation)
EQUALS \$800.00 for a Building 100' deep.

SHOWING MARKEDLY THE SUPERIOR FEATURES OF THIS DESIGN.
(False-work allows the use of any kind of roofing and any shape of suspended ceiling. Note page 19.)

References

- MR. FRANK P. GRAVELEY, Architect,—708 West 6th St., Los Angeles, Calif.
PROF. DONALD DERICKSON—C. E.,—Head of School of Civil Engineering—Tulane University, New Orleans, La.
MR. ANDREW S. MONTZ, City Architect,—City Hall—City of New Orleans, La.
JONES—ROESSLE—OLSCHNER, Architects,—Baton Rouge—Shreveport and New Orleans, La.
MR. JANS JANSEN, C. E.,—Structural Engineer—Hibernia Bank Bldg,—New Orleans, La.
MR. ROBERT J. CUMMINS, C. E.,—Consulting Engineer, Board of Port Commissioners—Houston, Texas.
MR. LYMAN FLETCHER, C. E.,—Building Inspector—City of Orlando,—Orlando, Fla.
GEN. WM. L. SIBERT,—(COMMANDER OF THE FIRST DIVISION OVERSEAS)—Chairman and Chief Engineer, Alabama State Board of Port Commissioners—Mobile, Ala.
MR. J. P. EWING, C. E.,—V. P. Doullut & Ewing—Engineers and Contractors—Q. & C. Bldg., New Orleans, La.
MR. O. M. GWINN—General Contractor—Union Indemnity Building, New Orleans, La.
GEROW & CONKLIN—Architects—Toledo, Ohio.
MR. FRANCIS FRANZHEIM—Architect—New York City—New York.
PROFESSOR. HALE SUTHERLAND, Prof. of Structural Engineering—Massachusetts Institute of Technology, Cambridge Mass.
MR. HAYWOOD NELMS,—Mgr., Houston Airport Corp.—Houston, Texas.
MR. R. W. CARR—President of the Colonial Realty Company—Orlando, Fla.
PROF. GEO. E. BEGGS,—Inventor of the "BEGGS DEFORMATOR APPARATUS"—Princeton University, Princeton, N. J.
MR. H. N. FAUCETTE,—C. E.—Chief Engineer of the Seaboard Airline Railroad Co.,—Savannah, Ga.
MR. FRED. PERKINS,—(Potentate of Jerusalem Temple)—Pres., Capital City Auto Co.,—(Studebaker)—New Orleans, La.
DR. P. H. PHILLIPS—"THE GRAPE-FRUIT MAN"—Orlando, Fla.
HON. JOHN KLOSER,—C. E.—Commissioner of Public Property (and Nationally Known Mississippi River Levee Engineer)—City Hall—City of New Orleans, La.
MR. W. R. FOGLE, JR.,—Chairman Building Committee, 1st Baptist Church—Minden, La.
REV. FRANK TRIPP, 1st Baptist Church—St. Joseph, Mo.
MR. H. P. MITCHELL—Pres., Citizens National Bank of Hammond,—Hammond, La.
MR. SAM STONE, JR.,—Architect—Masonic Temple—New Orleans, La.
MR. L. P. BANCHET,—Asst. V. P.—Hibernia Bank & Trust Co.,—New Orleans, La.
MAJ. W. B. GREGORY—Head of Dept. of Experimental Engineering—Tulane University,—(Was in charge of Entire A. E. F. Water Supply in France)—New Orleans, La.
MR. ED. LUDWIG—President of the CANAL STEEL WORKS—New Orleans, La.
-
-

MURVAN M. MAXWELL, FAIA
303 Audubon Boulevard
New Orleans, LA 70125

THE FOLLOWING COMPANIES HAVE BEEN DULY LICENSED AND AUTHORIZED TO HANDLE THIS CONSTRUCTION IN THEIR RESPECTIVE TERRITORIES. THEY HAVE BEEN SUPPLIED WITH EXPERIENCED WELDERS AND CONSTRUCTION SUPERINTENDENTS, SPECIALLY TRAINED IN THE ERECTION OF THESE BUILDINGS; AND ARE SUPPLIED WITH ALL NECESSARY WORKING DRAWINGS BY THE ARCH ENGINEERING COMPANY OF NEW ORLEANS, WHICH COMPRISES THE VERY BEST ARCHITECTURAL ENGINEERING, AVAILABLE AND WHICH IS THE ONLY ONE DULY LICENSED TO HANDLE THESE STRUCTURES.

(As the design of these structures involve

are advised to be cautious of imitations.)

Canal Steel Works

P. O. BOX 347

NEW ORLEANS, LA.

Be sure to give the SERIAL NUMBER as stated on filing, name of applicant, and state of invention when inquiring about this application.

NEW ORLEANS LA
INVENTION ARCHED ROOFING CONSTRUCTION

EUGENE CENAS GRAVELEY
705 UNITED FRUIT BLDG
NEW ORLEANS LA

The petition, specification, oath, drawing, and first fee of TWENTY DOLLARS of your application for PATENT above identified are received.

Respectfully,

THOMAS E. ROBERTSON,
Commissioner of Patents.

Form 2-930 a 11-2821 (SEE OTHER SIDE)

CERTIFICATE OF PATENT
35
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